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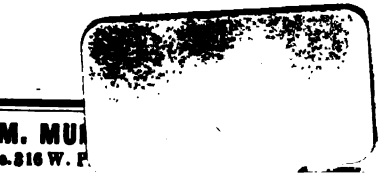
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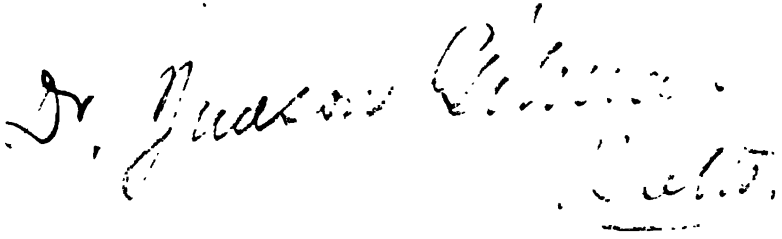
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HALF-YEARLY COMPENDIUM

OF

MEDICAL SCIENCE:

A SYNOPSIS

OF

THE AMERICAN AND FOREIGN LITERATURE OF MEDICINE, SURGERY, AND THE COLLATERAL SCIENCES, FOR SIX MONTHS.

EDITED BY

D. G. BRINTON, M.D., AND C. C. VANDERBECK, M.D., PH.D.

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PREFACE.

In presenting this number of the COMPENDIUM the editors have but to remark that the selections it contains have been made on the same plan as heretofore. They afford a wide variety of illustrations of progress in all the branches of medicine, and, it is believed, will prove of equal value with any previous number.

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ANATOMY, PHYSIOLOGY AND PATHOLOGY.

I. ANATOMY.

Cranial Deformities, from Hereditary Syphilis.

The *British Medical Journal*, October 13th, 1877, states that, at the recent meeting of the French Association for the Advancement of Science, at Havre, Dr. PARROT communicated an important paper on the cranial deformities caused by hereditary syphilis. The form of the cranium, he said, is either normal or abnormal. The former results from the physiological evolution of a determined hereditary type; the latter, or deformities, are either artificial, that is to say, produced purposely, immediately after birth, in order to give the cranium a particular form, or they result from disease. Pathological deformities have been little studied, and scarcely ever by the aid of clinical observation and pathological anatomy. Those which are produced by hereditary syphilis are among the most frequent and the most characteristic, although not till now recognized. Syphilis attacks, in the different parts of the body, the connective tissue, and more particularly the osseous system, into the structure of which connective tissue enters so largely. The bones are affected whenever the disease attacks any other part, or they may be separately diseased. Their lesions are so characteristic that they suffice, the moment they are seen, to satisfy the observer if hereditary syphilis have or have not existed in the subject to whom the bones belonged. They consist in ulcerations, or osteophytes; the latter are alone interesting as regards deformities of the skull. They have a distinct location, appearance, and structure. They are found in the form of lenticular plates, more or less large and thick, on the surface of the cranium, in the peribregmatic angles of the frontal and parietal bones. Thence they may extend to other parts of the vault of the skull, excepting always the frontal and parietal protuberances. During the progress of the disease, the parts first invaded become considerably thickened, and finally two tuberosities are seen along the coronal suture, and two others on the parietal bones bordering the sagittal suture. These elevations are separated from one another by deep grooves; whence result a form and an appearance of the skull truly typical, and which only hereditary syphilis can produce. The elevated portions are distinguishable from the rest of the healthy bone by the existence of pores on the surface, by vascular grooves, and by their structure; for they are formed by osseous tuberculæ and medullary spaces perpendicular to the surface of the normal bone. Besides, the histological characters differ essentially from those of healthy bone. Often, by the extension of osteophytic layers to the sutures, these are prematurely united, and thus, not only an arrest in the development of the cranial cavity may be caused, but also of the brain itself. These cranial marks of hereditary syphilis are indelible.

The skull of a young Indian of Pernambuco, eighteen years of age, and dead of marsh fever, presented all the characteristics previously indicated on the parietals, which were thickened at the site of the lesion by twenty millimetres. They are also found long after death, and are incontestable witnesses of syphilis. In the two

skulls of children given to the Institute of Anthropology by M. Destruges, and procured by Guayaquil, from the sepulchres of a period anterior to the arrival of the Spaniards in the New World, there exist lesions identical with those which M. Parrot has observed in extreme youth; and in the two skulls of adults in the collection of the Museum, procured, one from Africa, and the other from the environs of Lima, may be observed the typical deformities of ancient hereditary syphilis. Both came from sepulchres much anterior to the conquest. The last-named skull has a thickness of thirty-eight millimetres at the level of the parietal tuberosities, whilst in other parts it is but ten millimetres thick.

From the foregoing, then, M. Parrot concludes:—

1. That hereditary syphilis deforms the skull in a typical and indelible manner.
2. That syphilis existed in Peru and Guayaquil before the discovery of America.

The Muscular Agents in Spinal Movement.

The following observations of M. Jules Guérin have many practical bearings. They are part of a paper he read before the Paris Academy of Medicine, on flexion movements and lateral inclination movements of the vertebral column. Every voluntary movement induces outside the muscles which are the direct agents of them, the co-ordinating action of the muscles which harmoniously assist in the accommodation of the parts to the object to be attained. The characteristics by the aid of which it is possible to recognize the direct or auxiliary action of the muscles appropriated to each movement of flexion or lateral inclinations are these: 1. The direct agents have their insertions in the column itself, above and below the articulation which is the centre of this movement, and in such a way that this articulation, between these two points, serves as a basis or lever to the mobilized portion. 2. Contraction, or the effort of the direct agents of the inclination, is created in the transversal plane. 3. The auxiliary agents of the inclination are those of which the simultaneous contraction resolves itself into a result of which the action is mixed up with that of the direct motor.

Atlanto-occipital Inclination.—The direct agent is the rectus capitis lateralis minor. The recti minores and obliqui minores posteriores give to the head a certain degree of extension, so as to favor the movements of the condyles of the occipital bone on the articular surfaces of the atlas; their action, combined with that of the rectus anticus minor, gives a result perfectly situated in the working plane of the rectus lateralis minor. In certain circumstances, the collective and harmonious action of other muscles is added to the direct action of the atlanto-occipital muscles; they are anteriorly the rectus anticus major capitis, behind the rectus posticus capitis, the obliquus capitis superior, the splenius capitis, the complexus minor, and the sterno-mastoid.

Cervico-dorsal Inclination.—The transversalis colli is the direct agent of this movement, and its most powerful action corresponds to the articular union of the two portions of the column on which it exercises leverage. The auxiliary agents are, in front, the longus colli, more especially by the anterior fibres; behind, the complexus, but especially the two scaleni.

Dorso-lumbar Inclination.—The direct agent is the muscle described by Winslow under the name of spinalis dorsi, and by M. Sappey under the name of faisceaux épineux. There is also a bundle of fibres inserted into the small apophysal hook of the third dorsal vertebra, and attached to the spinal apophyses of the seventh and eighth dorsal vertebræ. The auxiliaries are, in front, the psoas magnus;

behind, the transverse and costal portions of the longissimus dorsi, and the whole of the sacro-lumbalis.

Lumbo-sacral Inclination.—The direct agent is the quadratus lumborum. The auxiliaries are all the muscles which arise from the sacrum to pass on to be inserted into the lateral portions of the spine along its whole length, the inter-transversales lumborum, the sacro-lumbalus, and the longissimus dorsi.

II. PHYSIOLOGY.

On the Functions of the Spleen

The following are the conclusions of a paper read (*Gaz. Hebdomadaire*, September 21) at the recent Medical Congress of Geneva, by Professor SCHIFF :—

1. Extirpation of the spleen has no durable influence on the absolute or relative quantity of the white or red globules of the blood. 2. During the early periods after the operation there is observed a considerable increase in the white globules, with or without a diminution of the red globules. But these changes do not depend upon the absence of the spleen, but only upon the operative procedures necessary for its ablation ; and the phenomena remain very much the same when these preparatory acts are not followed by the removal of the spleen. 3. After the removal it is quite exceptional for any swelling of the lymphatic glands, or increase in the size of other glands, to take place. The so-called supplementary spleens are not produced even when the animals are allowed to live for more than a year and a half, and when the operation has been performed only a few weeks after birth. 4. The swelling of the mesenteric glands, which is very exceptionally met with in animals from which the spleen has been removed, appears to be due to a prolonged partial peritonitis, which sometimes is a consequence of the operation. 5. The spleen appears to increase in size from the fourth to about the seventh hour of a sufficient stomachal digestion. 6. The spleen during digesting, or rather during stomachal absorption, prepares the ferment which, entering with the blood into the tissue of the pancreas, transforms in this gland a special substance (probably an albuminoid) into *pancreato-pepsin* or *trypsin*—that is to say, into a substance apt to digest albuminoid bodies. 7. After the extirpation of the spleen the pancreatic fluid loses its digestive influence upon albuminoid bodies, while retaining its other digestive properties. The duodenal digestion of albuminoid bodies is no longer distinguished by its energy and rapidity, but becomes feeble, as in other parts of the small intestine. 8. After the ablation of the spleen the substance destined to form pancreato-pepsin accumulates in great part in the pancreas, and may still be transformed into pancreato-pepsin by means of the chemical influences which after death accompany the commencement of putrefaction. 9. After the destruction of its nerves the spleen remains flaccid, and, undergoing turgescence no longer, becomes atrophied, as do erectile tissues in general, the vascular nerves of which have become paralyzed.

Experiments on Digestion.

In a series of observations and experiments on a case of gastric fistula, F. KRETSCHY (*Deutsch. Archiv für Klin. Med.*, vol. xviii) arrives at some interesting conclusions :—

A servant girl, twenty-five years of age, otherwise healthy, suffered from fistula of

the stomach, resulting from an abscess, itself the result of caries of the seventh left rib, which had burst simultaneously externally and into the cavity of the stomach. The external opening of the fistula was situated underneath the left seventh rib, in the extended nipple-line. Its diameter was three *centimètres*, and it exhibited pouting folds of mucous membrane, very red, and bleeding easily. A sound could without difficulty be introduced from without inward; and, on the other hand, a quantity of rice-soup, of which she had partaken, was forced through the opening externally. The fistula was of five months' standing at the commencement of the experiments. Kretschy made the following observations on the case. 1. On the normal duration of the digestive process. As the course of gastric digestion is indicated by the degree of acidity of the contents of the stomach, it was ascertained how long the acid reaction continues after food, how the acidity increases, how it falls, and when the fistula ceases to discharge. The degree of acidity was ascertained by testing with a solution of soda of known strength. It was found that the digestion of breakfast took five hours and a half, that the maximum of acidity was reached at the fourth hour, and that then it fell, until, within an hour and a half, a neutral reaction was reached. The digestion of the midday meal lasted seven hours. The maximum acidity was reached at the sixth, and in the seventh a fall to neutrality took place. Even in the fifth hour numerous microscopic bands of muscular tissue were recognized, and also starch granules. The evening digestion lasted from seven to eight hours. 2. Influence of menstruation on the digestive process. On the day before the menses appeared, there were decided fluctuations in the acid curve. On the day of their appearance, a neutral reaction was never obtained the whole day. The evening digestion was not delayed. On their cessation, the normal acid curve at once returned. 3. Influence of alcohol on the digestive process. The patient partook of three cubic *centimètres* of alcohol in one hundred of water, to her dinner. The alcohol rendered the process slower. 4. Influence of coffee at dinner. The acid curve was lower, and the neutral reaction set in about an hour later. 5. Pepsine, taken just before dinner, did not shorten the process. 6. Distilled water, taken moderately, exerted no acid reaction on the gastric juices; high spring water (*hochquellen Wasser*), on the other hand, rendered the gastric juices acid under like circumstances. 7. Alcohol is converted into aldehyde in the stomach. This observation was confirmed in experiments on a dog with an artificial gastric fistula.

Quantitative Determination of Sugar in Blood.

In a paper read before the Royal Society of Great Britain, on June 14th, 1877, Dr. Pavy described minutely a new method for the quantitative determination of glucose, and its application to physiological relations of sugar in the animal system. The details of the new method are shortly as follows:—

A certain volume of blood—about twenty cubic *centimètres*—is first mixed with forty *grammes* of sulphate of soda. The whole must be subjected to weighing in detail, so that the precise weight of the blood taken may be known. To this mixture, contained in a beaker of about two hundred cubic *centimètres* capacity, about thirty cubic *centimètres* of hot concentrated solution of sulphate of soda are added, and the whole contents heated until a coagulum is formed. Filtration is then performed, and the coagulum thoroughly washed, so that all traces of sugar may be removed. The liquid thus obtained, having been run and squeezed through muslin, is slightly turbid, and must be boiled again and filtered through paper to render it perfectly clear. It is now ready for the application of the copper test. Being

brought to a state of ebullition, about ten cubic *centimètres* of the solution of potassio-tartrate of copper, or sufficient to secure that the test liquid is left in excess, are added, and brisk boiling continued for a minute, but not longer. In this way a reduction of the oxide to the suboxide of copper is effected by the action of the sugar present in the solution. The liquid is then filtered through a plug of asbestos, or, what is better, glass wool. The suboxide having been collected and washed from excess of the copper-test liquid, is next dissolved by a few drops of nitric acid, a small quantity of peroxide of hydrogen having been previously added, in order to effect oxidation and consequent ready solution. The copper present in the liquid is now deposited by galvanism. The positive pole of the battery is formed by a platinum spiral coil, around which, and forming the negative pole, is a cylinder of platinum foil; upon this the copper is slowly deposited in a pure metallic form. This operation is continued until the appropriate test shows that the whole of the copper has been thrown down. The period ordinarily required to effect this does not exceed twenty-four hours. The platinum cylinder is next removed, and instantly plunged first into distilled water and then into alcohol. After drying in a water oven, it is ready for weighing; the difference in the weight of the cylinder before and after the operation gives the amount of copper deposited. The battery used is a modification of Fuller's mercury bichromate battery, and has been selected on account of the constancy of its action. From the amount of copper deposited, that of the sugar existing in the blood analyzed may be accurately calculated. Five atoms of the cupric oxide of the test solution are reduced by one atom of glucose; it follows that 317 parts of copper represent the equivalent of one part of glucose, or the relation stands as one of copper to 0.5678 of glucose. Therefore, to ascertain the amount of sugar, the weight of the copper has to be multiplied by 0.5678. This application of the copper-test solution yields a gravimetric instead of a volumetric process of analysis, and one which has no uncertainty. The accuracy and reliability of the foregoing process, the author stated, are strongly supported by the uniformity in the results obtained from a large number of experiments. He said that Bernard's figures are invariably too high, and there is no intelligible relation in the difference noticeable.

The Relation of Ovulation to Menstruation.

The *Lancet*, July 14th, 1877, remarks:—

The relation of the discharge of ova to menstruation, and of menstruation to the discharge of ova, is a question to which considerable attention has in recent years been directed. It has been shown repeatedly, by anatomical examination, that menstruation may take place without the occurrence of ovulation, but similar evidence has hitherto been wanting in favor of the belief that ovulation may take place without menstruation. The opinion that ovulation may take place without menstruation has been based upon the fact that women who have never menstruated have borne children; but this was unsatisfactory, inasmuch as the objection may have been raised that the woman would have menstruated had not conception taken place—that, in fact, the occurrence of conception prevented that of menstruation. M. de Sinety has, however, set the question at rest by anatomical evidence. Before the Société de Biologie, he described the anatomical characters of the uterus and ovaries of a woman who had never menstruated. She was thirty-eight years of age, and, with the exception of the menstrual flow, had presented, from her tenth year, all the symptoms of puberty. The uterus was externally of normal volume, but

the cavity was formed almost entirely by that of the neck; the cavity of the body was like that of the fœtal organ, and the mucous membrane presented the character of the infantile condition. Ovulation had been very active, for the ovaries presented many false corpora lutea.

On Localization of Function in the Cerebral Centres.

One of the more recent studies on this subject is by MM. CHARCOT and PITRES. Their conclusions are given in the *Lancet*, July 14th, 1877. They believe that the cortex cerebri of man is not functionally homogeneous; that only a portion of the convolutions is devoted to voluntary movements. This "cortical motor zone" comprises the paracentral lobule, the ascending frontal and ascending parietal convolutions, and perhaps, also, the base of the frontal convolutions. All cortical lesions, whatever their extent, seated outside this motor zone are latent in the direction of disturbances of motility; that is to say, they determine neither palsies nor convulsions. They are never accompanied by secondary degenerations of the spinal cord. On the other hand, destructive lesions, even of very limited extent, attacking, directly or indirectly, the motor zone, necessarily produce disorders of voluntary movement. If the lesion be abrupt—if it destroy at once a great part of the "cortical motor zone," it gives rise to a sudden complete hemiplegia, accompanied, later, by secondary degenerations of the spinal cord and slow contraction of the paralyzed muscles, thus completely resembling ordinary hemiplegia from central causes. If the lesion be limited to a restricted portion of the cortical motor zone, it gives rise to monoplegiæ (suppression of functions), and to convulsions, taking usually the form studied under the name of partial epilepsy (phenomena of irritation). At the end of a certain time these destructive lesions of the motor zone, even when very limited, determine a secondary degeneration, which descends through the cerebral peduncle and the medulla oblongata into the lateral column of the opposite side of the spinal cord. The study of paralysis and convulsions of cortical origin demonstrates that the cortical motor centres for the two limbs of the opposite side are situated in the paracentral lobule, and in the superior two-thirds of the ascending convolutions, and that the centres for the movements of the anterior part of the face are placed in the lower third of the ascending convolutions, in the neighborhood of the fissure of Sylvius. It is very probable that the centre for isolated movements of the upper limb is seated in the middle third of the ascending frontal convolution of the opposite side. The summary concludes with the statement that, as yet, there is no proof of the precise situation of the cortical motor centres for movements of the neck, eyes, or eyelids.

The Influence of the Spinal Cord on Bodily Temperature.

The *Archives de Physiologie*, Fevrier, 1877, contains an article on this topic in which the author, Dr. H. PARINAUD, details a number of experiments, from which he draws the following conclusions:—1. Transverse sections of the cord, in the cervical or dorsal region, cause a fall in the central temperature, even when the temperature of the surrounding air is 28° or 30° cent. (82 4 or 86 Fahr.). 2. This fall of temperature depends upon the cooling of the paralyzed parts, of which, during the entire experiment, the deep temperature remains lower than that of those parts which are still under the influence of the cord. 3. On the surface, and at the toes of the paralyzed part, however, the temperature rises; but this phenomenon, which is due to the paralysis of the vaso-motor nerves, is only temporary, its constancy depending

the initial heat of the skin, and on that of the surrounding medium. The effect section of the cord is then twofold. By diminishing the combustion in the anatomical elements it *cools*, by paralyzing the vessels it *warms*. The difference between the superficial and deep temperature depends partly upon both these factors: the central parts producing less heat in a given time, and losing it more rapidly, from the greater exposure of blood at the colder surface.

On Reflected Painful Sensations.

The London *Medical Record*, May 15th, 1877, gives an abstract of a paper by Prof. GUBLER, in relation to certain painful sensations that are experienced at distant points when such nerve-containing tissues as skin are sharply pinched. These painful sensations he speaks of as reverberated, being, as it were, true painful echoes awakened by spontaneous or excited pain, and which manifest themselves at a distance, in parts in central nervous connection with the point of departure of the shock. The exciting pain must be acute, such as that resulting from pinching a piece of skin in a state of irritation or hyperæsthesia, or the scratching of a pimple containing an inflamed hair-follicle, or the plucking out of a hair. The painful sensations, or echoes—to adopt M. Gubler's term—show themselves regularly at determinate points, always the same for the same point of departure; that is to say, a pain excited in one region will have its echo only in one other region, often very distant. Thus a pimple in the thigh irritated by the nail will determine a secondary painful sensation toward the hypogastrium; a sharp blow of the nail on this region will have its secondary echo at the base of the chest; while a shock communicated to the thorax will come out towards the wrist, sometimes at the radial, sometimes at the ulnar border. These secondary painful sensations have the following points in common: they appear on the same side of the body as the exciting pain, they spread exclusively on the anterior or posterior surface, according to the starting point of this exciting pain, and are propagated from the interior toward the exterior, from the visceral cavities toward the cutaneous covering, and from the periphery toward the centre. A pain, *e. g.*, having its origin in one of the iliac fossæ often gives rise to a secondary shock in the hypochondrium of the same side.

The comparison of these reflected pains with the acoustic phenomena of an echo is so much the more justified, in that they do not resemble the initial pain that has caused them. Let the latter be a pinch, a bruise, or a wound, and the secondary pain will in each case be almost uniform in character, of short duration, and of very limited area, just like what would be caused by the prick of a needle.

The explanation of these phenomena is still involved in difficulty. The secondary pains occur at too great a distance to suppose them the result of the sympathy of contiguity. To account for the propagation to a distance, we must fall back upon the mechanism of reflex acts; but in the ordinary type the sensory impression carried to the centre is reflected to the periphery in the form of movement, while here it would still be a sensation. Such an occurrence would imply the possibility of a centrifugal current traveling in a sensory nerve, a fact not generally admitted by physiologists. The difficulty, however, would disappear if we regarded the reflected pain as resulting from the metamorphosis of a motor current across the peripheral nerve-cells (Remak), which may be looked upon as a sort of diffused spinal centre. These secondary pains cannot be compared to the illusory sensations experienced by persons who have had their limbs amputated, for the latter seem to set out from the peripheral expansions of the nerves, and are referred to parts of the extremities

longer present; whilst the painful echoes are arrested, as it were, midway, and manifest themselves invariably at single determinate points. Accordingly, we may suppose that the initial pain, whether excited or spontaneous, is transmitted to the nerve-centre, and that thence the shock is reflected in a sensory trunk that is connected in the spinal cord with the sensory branches of the irritated region. This shock is propagated eccentrically, that is to say, in an inverse direction to the ordinary sensory current. This paradoxical current continues to travel a greater or less distance without giving rise to any sensation, or rather perception, until it is arrested, when a sort of reflux or return shock occurs, and consecutively a painful perception in the spinal centre. Naturally, the pain is felt at the point where the reflection takes place.

Peristaltic Movement of the Intestine.

M. JULES GUÉRIN'S experiments, given in the *Gazette Médicale*, July, 1877, lead him to believe—1. That matters contained in the intestine do not move along it by virtue of an action *à tergo*, resulting from the simple circular contraction of the muscular coat, but by virtue of a double action, propelling and aspiratory, produced by the contraction of the circular and longitudinal muscular fibres. 2. That owing to this double contraction between two continuous parts of the intestine, the upper portion, contracting circularly, pushes its contents toward the lower, while the latter, shortened by the contraction of its longitudinal fibres, advances to meet the former, receives its contents, and draws it in by a kind of aspiration resulting from the relaxation of its fibres, such relaxation producing in this part an increase of length and capacity. 3. This double movement of propulsion and aspiration reproduces itself in each partition, so to speak, of the intestine, the partitioning depending on the valvulæ conniventes, whose borders, brought in contact by the circular contractions, form an obstacle to the retrograde movement of the contents.

On the Motions of the Brain.

Mr. W. J. FLEMING, Lecturer on Physiology at the Glasgow Royal Infirmary, has contributed to the Glasgow *Medical Journal*, for July, 1877, an interesting paper on the Motions of the Brain:—

He had access to two men, each of whom had had portions of their skull caps removed by accident, and he took cardiographic tracings of the pulsations and respiratory motion of the brain under different circumstances, when the patients were awake, when asleep, after meals, after taking stimulants, and after mental exertion. He reproduces the tracings. He shows clearly that though the actual bulk of the contents of the cranium cannot vary, yet that they may greatly differ in the relative amounts of the two fluids which are separated only by elastic and freely extensible membranes, viz., the cerebro-spinal fluid, and the blood contained in the vessels. When the volume of the latter is increased, part of the former passes down into the spinal canal, which is a yielding box. A tracing taken when the brain conditions are normal can scarcely be distinguished from one taken from the radial artery. Holding the breath, coughing, speaking, straining, all markedly affected the respiratory curves. Holding the breath had this effect:—"After the moment at which breathing was suspended, we have for three pulsations no perceptible effect; from this point the whole line shows a gradual elevation, corresponding to an increase of tension, and at the same time each pulsation becomes longer and stronger, and the dicrotic notch more marked, and generally doubled. A slight fall

then takes place in the tension, probably owing to an effort of the thorax to inhale, immediately followed by a marked rise, culminating in what we may call a gigantic pulsation. The trace then gradually falls until breath is taken, when, after two or three irregular pulsations, it returns to the normal." Compression of the femorals and jugulars was followed by great increase in the cerebral bulk, while posture markedly affected it; such positions as recumbency, elevation of arms, etc., caused great increase of blood in the brain. After food there was a marked increase in the cardiac brain-pulsations, and after some beer the pulsations and respiratory curves were found gradually to increase, showing a diminution in the whole bulk of the encephalon, due to the amount of blood drained off for the performance of digestion. During sleep the curves pointed to a condition of congestion rather than of anæmia of the brain. Anæsthesia removed the respiratory curves and increased the cardiac, while, during mental exertion, the volume of the brain was increased.

Recent Discoveries in the Physiology of the Retina.

Dr. F. Buller, M. R. C. S., of England, communicates to the *Canada Medical and Surgical Journal* of August, 1877, upon this subject, as follows:—

The commonly accepted belief that the healthy retina of vertebrate animals is, during life, a perfectly colorless and transparent membrane, has been completely upset by the recent researches of Boll.* From these it appears that the external portions of the rods and cones of most vertebrates, and the corresponding structures of the invertebrata, are, during life, of a vivid red color, which color rapidly fades and disappears after death if the retina is exposed to ordinary white light. Examined microscopically, the great majority of the rods present individually the characteristic reddish hue; interspersed among these, however, are a few of a pale green color.

The red color was at first observed to be of a somewhat purple tinge, and for this reason was designated *sehpurpur* (vision-purple), but further investigation has shown that the purple hue does not exist in eyes which have been kept in absolute darkness; the color of such retinæ is a pure red, and the term *sehroth* (vision-red) is the more appropriate of the two.

The old idea that the act of vision depends on the occurrence of certain photochemical changes in the retina is now no longer a matter of theory, but has been shown to be correct by the observation of a series of very definite and easily demonstrable facts, and there can be no doubt that there exists in the living retina a red coloring matter, which is transformed by the action of light into several other substances.

It might at first thought excite surprise that the red color of the retina has so long escaped the observation of physiologists; not so, however, when we take into consideration that the color is constantly being destroyed during life, and that it disappears altogether very soon after death if the eye is exposed to the influence of daylight.

Kühne, of Heidelberg, in some further experiments discovered that the color was retained from forty to sixty times longer after death if the eye was only exposed to gaslight, and that in the dark, or when exposed to a sodium light, it was retained until decomposition set in. The retina, when removed from the eye, and bleached by the action of light, does not resume its red color when kept in the dark; if, however, it is only lifted up from the subjacent epithelium, and bleached, the color is

* Berichte der Berliner Akademie, November, 1876.

restored by replacing it in contact with the epithelium and keeping in the dark; hence it is probable that the power of restoring the red color belongs to the retinal epithelium. In view of the facts recorded above, Kühne* was led to believe that by arresting the constant reproduction of red color which takes place during life, a more or less permanent objective image might be formed upon the retina, and his experiments in this direction have justified the assumption. The head and eye of a rabbit were fixed at a distance of 1.5 m. from a hole 30 c. square in a window shutter, covered five minutes with a black cloth, and then exposed for three minutes to the light from the hole. The animal was then decapitated, the eye enucleated as quickly as possible by sodium light, opened, and placed without delay in a 5 per cent. solution of alum. Two minutes after death the other eye was exposed to the light and treated in a similar manner, except that it was not removed from the head. The following morning both retinæ were removed, and upon the posterior surface of each there was a sharply defined light image about one square m. in size, on a rosy-red ground. The image found in the second eye was the sharper and paler of the two. Both faded rapidly as the red ground became pale on exposure to light. In another experiment conducted in a similar manner, by placing the eye opposite a window the image of the latter was perfectly distinct, and was traversed by beautiful red lines corresponding to the crossbars of the sash. The red color may be preserved for an indefinite length of time by drying the fresh retina on porcelain in the dark; it has not been discovered in the retina of birds (pigeon, hen) or of the snake. According to Kühne the red coloring matter of the retina is destroyed by a temperature of 100° C., alcohol, glacial acetic acid, and caustic soda; it is not altered by a 5 per cent. solution of chloride of sodium, a saturated solution of the same, liq. ammoniæ, glycerine, sulphuric ether, solution of alum, acetate of lead, nor by a 2 per cent. solution of acetic or oxalic acid. Boll suggests that the peculiar color of the pupil, as seen by opthalmoscopic illumination, is derived from the retina, but there is not as yet sufficient evidence to warrant the acceptance of this view.

In order to ascertain the influence of colored light upon the retina, frogs were enclosed in glass vessels of different colors and exposed to the light of the sun, and it was found that: (1) red intensified the color of the retina; (2) yellow light makes it somewhat paler and clearer; (3) green light gives it a purple tinge, but when exposed to an intense green light the retina becomes violet; later on the violet becomes paler and paler, and at last the retina is found to be almost colorless. Blue and violet cause it to assume a muddy violet hue; if their action is prolonged the retina becomes colorless, just as when exposed to white light.

Thus it appears that the influence of light is maximal at the violet end of the spectrum and minimal at the red end; or, in other words, that it is in inverse proportion to the length of the luminous undulations. With the process of bleaching a peculiar alteration takes place in the relation of the pigment layer to the rods and cones, inasmuch as the two are readily separated in the unbleached retina, but adhere to each other much more persistently after bleaching has taken place.

How far these new facts will affect the current theories concerning the perception of light and color, is not easy to predict. It seems certain, however, that the intensity of perception of light does not depend upon the rapidity with which the *vision-red* is consumed, for it remains unaltered in red, or in sodium light, although either of these may give rise to very strong luminous impressions. Without undertaking to formulate any theory in explanation of the perception of color, Boll

* Centralblat f. d. Med. Wissenschaften, 3, 1877.

remarks that the above facts, for the most part, seem to indicate "that the action of color on the rod-layer of the retina, that is, on an integral part of the nervous system, is such as to induce certain objective alterations of color in its structure, identical in kind with the sensations and mental impressions which they create."

III. PATHOLOGY.

The Metastasis of Tumors.

Professors COHNHEIM and MAAS, of Breslau (*Virchow's Archiv*, June, 1877, have endeavored to elucidate the difficult question of the metastasis of new formations. Assuming the possibility that detached fragments of such new growths may find their way into the blood or lymph-vessels, and cause capillary embolisms in some distant part, as has been often suggested, they tested, experimentally, the truth of the hypothesis, so far as to ascertain whether an embolon composed of specific histological elements can grow within the walls of the blood-vessels, and reproduce a growth retaining the peculiar characters of the parent mass. They experimented on rabbits, dogs and hens, but were most successful with the latter. Their experiments consisted in detaching a small piece of periosteum from the tibia and introducing it into the jugular vein. At first they found considerable difficulty from the ordinary mechanical and surgical results of such an operation, but, by using Esmarch's method, combined with all antiseptic precautions, they succeeded, and the animals lived quite well. They were killed after various periods, by bleeding. In those killed from the third to the fifth day, only embolized periosteum was found; in those from the tenth to the sixteenth day, a resistant hard place on the lung, parenchyma, existed; in those after the twentieth day the results were quite negative. Microscopically examined, the masses found between the tenth and sixteenth days were truly growths of the periosteum, with commencing formation of bone; but, in cases where more time had elapsed, the new growth was seen to be undergoing absorption, and after a month had entirely disappeared. They consider this disappearance to be due to that physiological capacity of the organism which shows itself in the removal of callus, and they suggest that the real factor in the generalizing of new formations is the abolition of this function. So long as the constitutional condition of the individual maintains this ability, tumors remain merely local affections, although fragments are being constantly detached and carried about by the circulation to distant parts of the body. According to this view, the inoculation of healthy animals with cancerous matter would remain without effect, as we know to be the case. The explanation is hypothetical, but it is at least as comprehensible as the "malignity" of certain growths.

The Pathology of Phthisis.

In a Lecture on the Varieties of Phthisis, delivered at the Hospital for Consumption, Brompton, given in the *British Medical Journal*, September, 1877, Dr. C. THEODORE WILLIAMS, M.A., M.D., F.R.C.P., Physician to the Hospital, says—

In too many instances, the post-mortem examination of a case of phthisis reveals little of the various morbid processes which have brought about death. In the mere shell of a lung that remains, we see that not only have normal structure and function

been obliterated, but that the diseased products, the very destroyers themselves, have undergone disintegration and removal. From such specimens, we learn little or nothing; but in those less advanced we are able to recognize the principal actors in the tragedy, and to assign to each its proper part. The pathological appearances are briefly as follows:—

1. The various kinds of pneumonia: croupous, catarrhal, and interstitial.
2. Tubercle: gray and white, discrete and aggregated.
3. Necrobiotic changes, *i. e.*, caseation, ulceration, and cretification.
4. Fibrosis.
5. Lung pigmentation.
6. Various morbid changes in the bronchi, bronchial glands, and pleuræ.

Let us now briefly consider these processes in their relation to phthisis, beginning with the pneumonias.

1. *Croupous* pneumonia is the form of pulmonary inflammation where lobes, and not lobules, are primarily affected, and is characterized by its three well known stages?—1. Engorgement; 2. Red hepatization, marked by exudation of fibrin and red corpuscles, and leucocytes, with occasional rupture of capillaries; 3. Gray hepatization, where further emigration of leucocytes is accompanied by epithelial proliferation and followed by retrogressive changes, in the exuded products. This form of pneumonia most commonly results in (1) resolution, through liquefaction of fibrin, fatty disintegration of epithelium, and subsequent absorption or expectoration of exuded materials. It may also end (2) in abscess, (3) in gangrene, and (4) in chronic pneumonia. We need not concern ourselves with any but the first and last forms of termination, as the others are not common in phthisis. It is as well to note that croupous pneumonia is to be found in phthisical lungs, as I have heard it stoutly maintained that such a product cannot exist under the circumstances, as consumptive patients do not possess that standard of health which would enable them to produce anything but catarrhal or caseous pneumonia.

You can easily convince yourselves of the accuracy of my statement by a visit to the post-mortem room, where you will find plenty of examples of all stages of croupous pneumonia, especially of red hepatization, in connection with cases of recently formed tubercle. Whole lobes are seen consolidated and impervious to air, and, on section, show aggregations of miliary tubercle, either gray or commencing to caseate, scattered through them, standing out in bold relief against the deep red of the rest of the hepatized lung. Some of these masses of consolidation become absorbed, and we can trace the process during life by the accompanying physical signs. More frequently the lung does not clear up, the exudation remains, becomes organized with blood-vessels and lymphatics, and thickening of the alveolar wall takes place; in fact, the pneumonia becomes chronic, and may lead at a future time to further retrogressive changes.

Catarrhal pneumonia or broncho-pneumonia is commonly met with in phthisis, and is distinguished pathologically from croupous by its starting from the bronchi; by its involving not lobes, but lobules; by its being accompanied by pulmonary collapse; by its limited character and histological products. The color of the points affected are grayish yellow, and they vary considerably in size, from a pin's head to a cluster of lobules, giving to the lung a marbled appearance, from the admixture of pigment contained in the alveolar wall. The alveoli are blocked and stuffed to distention with large epithelial cells, which contain several nuclei. There are also leucocytes and fibrin exuded from the adjacent vessels.

This form is very difficult to resolve; the cells in time caseate and become expectorated, or are absorbed, and the absorption of this material appears to cause irritation and consequent hyperplasia of the lymphatics; but more will be said on this head when we discuss catarrhal phthisis.

Interstitial pneumonia is a chronic inflammatory process of the lung, in which thickening of the alveolar walls and of the inter-alveolar tissue takes place by means of a fibro-nucleated growth, and a gradual obliteration of the alveoli is the result. It is generally unilateral. The pleura and inter-lobular septa are largely thickened, the lung becomes shrunken, the alveolar structure destroyed, and the bronchi dilated. These latter are sometimes the seat of secondary inflammation, owing to the difficulty of expectoration and to the retention in them of irritating secretion. Ulceration takes place in their walls, and thus excavations are found in connection with the tubes.

Interstitial pneumonia generally follows one of the acute forms of pneumonia, and is identical with cirrhosis of the lung, and, moreover, is the main element of fibroid phthisis. Such are the pneumonias found in phthisical lungs, and we must take full note of them, as they are important landmarks in separating the different varieties of phthisis.

2. The forms of tubercle are *gray*, *white*, and *yellow*, and they vary considerably in size, from a pin's head to a hemp seed, and are found singly or in groups. The gray tubercle or miliary tubercle histologically consists of two elements:—*a*. Large multinucleated cells with branching processes, containing much granular material and bright nucleoli; *b*. A recticulum of adenoid, or small-celled, tissue. The latter consists of delicate fibres interlacing, and containing in the meshes a number of small lymphoid cells. There are also a certain number of epithelial cells.

The white tubercles differ only from the gray in the fact that the epithelial element preponderates. The yellow tubercle, on the other hand, is the gray or white variety undergoing caseation, and being gradually converted into fat or amorphous granules.

As regards the gray tubercle and its histological constituents, there is much discussion, especially as to the part played by each and its origin.

Klein affirms that, in some of the most rapid cases of acute tuberculous adenoid growth is to be found, but only desquamative or catarrhal pneumonia; states that, in some specimens examined by him, in the central or earlier portion a tubercular nodule there was nothing but fibrinous exudation, and, at the periphery or later portion, there was no fibrinous matter, but only spherical multinucleated cells; or, again, else the alveolus was filled by one large multinucleated cell. Klein considers that these different appearances represent different stages the process. First comes the fibrinous exudation and fills up the alveolus, gradually absorbed by the surrounding tissue, which is in a state of activity, as is shown by its infiltration with fluid, and by the distended blood-vessels. The exudation disappears and is replaced by groups of cells or by one cell. If the irritation last long enough, the small-celled tissue appears in the alveolus.

The nature of the giant cell is much disputed. Hering says that it is a lymphatic cut across; Ziegler, that it originates from colorless blood-corpuscles. Klein and others maintain that it is the offspring of the alveolar epithelium. this last theory, from the position of the cell, and the possibility of its seems most probable. Dr. Green, whose admirable drawings and specimens done much to elucidate the pathology of phthisis, considers that the

the histological characters of tubercle depend on differences in the ages of nodules and the intensity of the tuberculous processes. If the process be very intense, the nodules will consist almost exclusively of epithelial accumulations and fibrinous exudations within the alveoli, and they will undergo disintegration. If the process be less intense, nodules attain an advanced age, necrosis is less rapid and complete, and, therefore, there will be more time to develop adenoid tissue and multinucleated cells. Lastly, in the least severe and most chronic forms, the formation of multinucleated branched cells and adenoid tissue reaches its maximum.

This seems to be a very reasonable view, and one likely to reconcile the apparently conflicting views held by distinguished pathologists as to the nature of tubercle; for, while Rokitansky and Dr. C. J. B. Williams maintained that tubercle was an exudation from the blood vessels, the latter assigning a large part in the process to the leucocytes or *sarcophytes*, as he calls them, Drs. Sanderson and Wilson Fox conclude from their observations that it is entirely a lymphatic, or rather adenoid, growth; and that, in all specimens of tubercle, the small-celled tissue is present. Dr. Klein and Dr. Green's preparations show that all these processes may be present, and that their appearance or non-appearance are questions of time and of intensity of the tubercular process.

3. The *necrobiotic* changes in tubercle arise partly from its non-vascularity and partly from the adenoid growth invading the vascular walls and in time blocking up the vessels. Caseation takes place first in the gray and white tubercle, yellow tubercle being the result; the large aggregations become involved in the process, and we consequently get caseous masses of various sizes. In time, communication with a bronchus is established, and the caseous mass is removed by ulceration and expectoration, a cavity marking its site; or again, the caseous mass may remain quiescent in the lung and increase of the interlobular tissue may take place in its neighborhood, finally encapsulating and isolating it. In this condition, the mass soon loses moisture and passes from caseation into cretification, and is converted first into material like mortar, and then into the calcareous material often expectorated by consumptives.

4. Another ending of tubercle is *fibrosis*. This in old cases is a very common transformation, the histological changes being as follows: The small-celled tissue and its reticulum exhibit a tendency to assume spindle-shaped forms, the nuclei become more and more elongated, and, in a short time, fibroid tissue has formed.

This tissue plays a very important part in the pathology of phthisis; for, whilst it is in many cases an agent of invasion, choking up alveoli by spreading along their walls, it is remarkably free from any tendency to break down, but remains firm and tough to the end of the chapter. Its chief function is to limit the area of the destructive processes, which it often does most effectually, isolating portions of the lung which are the seat of active tuberculization or of softening; and, by its tendency to shrink, it promotes the cicatrization of cavities.

5. *Lung-pigmentation* is common in cases of phthisis of long standing, and appeared to be the result of chronic inflammation; but I believe its exact causation is not yet known.

6. The changes in the *pleura* in phthisis are various. In most chronic cases, adhesion and thickening are found, and generally overlying the diseased portions of lung. At the apices, which are most commonly the earliest portions attacked, the pleura is often enormously thickened and of cartilaginous hardness, proving, in the case of cavities, a good bulwark against any chance of pneumothorax. At the base

of the lung the thickened pleura often undergoes that change which has been so well described and explained by Dr. Douglas Powell. The layers, each somewhat thickened, are separated by a striated fibrillar material, which is sometimes connective tissue, the fine strix of which pass vertically from one pleural surface to the other. The explanation is that the shrinking of the diseased portion of lung causes a considerable separation between the parietal and visceral layers of pleura, and this space is filled in by serum which effused into the meshes of the connective tissue of the stretched adhesions. In instances of phthisis arising from pleuro-pneumonia or pleurisy, we get the whole pleura adherent and thickened. The changes in the bronchi in phthisis partake, to a great extent, of the changes in the alveolar wall, and we find inflammatory and cicatricial products, ulceration, tuberculization, and fibrosis present in different cases. The bronchial glands undergo pigmentary change in some patients, becoming exceedingly dark in colour, and in others undergoing cretification and cretification.

The Pathology of Chronic Pneumonia and Phthisis.

In Virchow's *Archiv*, November, 1876, Dr. CARL FRIEDLÄNDER gives an account of his prolonged observations of the process of tissue-changes in the lungs of dogs after severing the recurrent laryngeal nerves:—

The effect of this operation is to permit the entrance of foreign bodies into the air passages, and hence to set up inflammatory changes in the trachea, bronchi, bronchioles, air-vesicles, and parenchyma of the lungs. He has operated on seventy-two dogs, of which number only nine remained free from pneumonia. The changes he observed were, first, hyperæmia and œdema, which disappeared and passed into red hepatization, which also might disappear or pass into "transparent gray" desquamative hepatization, which might go on to atelectasis, or remain as such for as long as a month, but never underwent caseation; in other cases the red hepatization passed into a small-celled "whitish gray" hepatization, which rarely resolved itself, but as a rule underwent caseous degeneration. He does not assert that desquamative pneumonia in man never becomes caseous; but, at any rate, he says that Rokitansky's inclusive assertion that desquamative pneumonia only undergoes caseation cannot, he believes, be maintained. He draws especial attention to the changes in the blood-vessels as the most important feature in the production of caseation: in the round-celled infiltration referred to, the interstitial lung-tissue shares in the process, and the walls of the vessel undergo the obliterative endo-arteritis described by him. He also gives an account of an interesting development of epithelium in the walls of the bronchi. He has found the same appearances in the human being in a case of croupous pneumonia. He says the epithelium is in direct continuity with the surface layers, and that such a proliferation is not peculiar to cancer, but may take place wherever granulation-tissue and epithelium are in contact.

In the *Progrès Médicale*, March 3, 1877, Dr. GRANCHER makes an interesting communication on the evolution of tubercular granulations of the lung. They always develop themselves in the same manner. At first there is formed, at the sheath of the peribronchial lymphatics, a minute gray granulation, composed of lymphatic cells, which accumulate more or less round a centre. M. Grancher gives to this the name "embryonic granulation." These [illegible] cells obstruct the bronchial tube, and obliterate it [illegible] epithelial cells, and we have the granulation, described by Virchow, with caseous centre.

in the midst of a zone of lymphatic granulations. Later on, the lymphatic granulations which surround the caseous centre are converted into fibrous tissue—the fibrous granulation of Bayle. These three forms of granulation are not, then, the production of different morbid processes, but are the same product at different periods of its evolution. M. Grancher calls them "tuberculous granulations—embryonic, adult, and old."

The Pathology of Chorea.

Chorea is so rarely a fatal disease that the following notes on seven autopsies, given by Dr. W. Howship Dickinson, in the *Medico-Chirurgical Transactions*, vol. xli, have especial interest:—

"Case 1.—Two days. Injection of vessels of all classes in brain and cord; most marked in the corpora striata and arbor vitæ, and in the dorsal region of the cord. Traces of erosion widely distributed. Hemorrhage into, and distention by serum of, the central canal.

"Case 2.—Twenty-one days. Similar injection of brain, with the addition of superficial hemorrhages, and exudation around the arteries of the corpora striata. Injection of cord, and peri-arterial erosion in the dorsal and lumbar regions, marked in the gray matter.

"Case 3.—Twenty-four days. Injection of the vessels of the brain of every class, most numerously about the optic thalami; some extrusion of corpuscles. Injection of the cord and hemorrhage into the gray matter of both dorsal and lumbar regions, symmetrical with regard to the two sides.

"Case 4.—Fifty-seven days. Injection of the brain, chiefly venous, and of the corpora striata. Injection and erosion of the cord, with large hemorrhage into the cervical gray matter, and smaller elsewhere.

"Case 5.—Sixty-four days. Venous injection of the brain, especially of the corpora striata, wherein were also peri-arterial exudations. Arteries in the convolution near Sylvian fissure surrounded by blood crystals and débris. Injection and scattered erosions of the cord. 'Sclerosis' of gray matter in both the dorsal and cervical regions placed with bilateral symmetry.

"Case 6.—Fatal attack thirteen days. Two precedent attacks (to one of which the older changes were apparently due), the last a year ago. Recent injection, such as in the other cases, of the bodies at floor of the lateral ventricles, and of the cord. Older changes, peri-arterial degenerations and scattered spots of 'sclerosis' in the *substantia perforata*, and convolution at beginning of the left Sylvian fissure.

"Case 7.—Four years. Spots of 'sclerosis' numerously set in the *substantia perforata*, and gray matter of *corpora striata* symmetrically placed with regard to the two sides. In cord, large exudations into gray matter and fissures, chiefly in cervical region."

Thus, the changes throughout the series were remarkably constant in kind and place. In *kind* they were all (allowing that sclerosis is so) directly connected with vascular disturbance. In *place*, the changes affected both brain and cord, being generally—sometimes almost exactly—symmetrical. The nature of the lesions in the brain and cord is not consistent, according to the author, with the somewhat attractive hypothesis of embolism.

PHYSICS, BOTANY, CHEMISTRY AND TOXICOLOGY.

I. PHYSICS.

The Limits of the Optical Capacity of the Microscope.

Dr. LESTER CURTIS, Chicago, sends the following communication upon this subject to the Chicago *Medical Journal and Examiner*, June, 1877:—

Two papers, one written by Professor Abbe, of Jena, and the other by the well-known Professor Helmholtz, on the limits beyond which, from the nature of light, it is impossible to carry the magnifying power of the microscope, with any profit, are at present attracting considerable attention among those interested in the use of the instrument. It has been suggested to me that a condensed statement of the results arrived at by these investigators might be of interest to those readers of the *Medical Journal and Examiner* who might not have access to the original papers.

The first difficulty that stands in the way of a very great amplification of an object is the difficulty of obtaining sufficient illumination to render it clearly visible. The opening through which the object is viewed in a microscope diminishes just in proportion to the magnifying power. The size of this apparent aperture has nothing to do with the size of any of the glasses of the microscope, and only varies with the changes in the magnifying power of the instrument; it makes no difference in what way this magnifying power is obtained, whether by the use of higher-power objectives, or higher eye-pieces, or by lengthening the tube of the instrument. The only circumstance that modifies the size of this orifice is what is called the angular aperture of the objective, an objective of a small angle having a smaller field than an objective of a large angle. The size of this orifice can be seen by arranging the microscope as for an ordinary observation, and then removing the eye a short distance from the eye-piece and looking down it. One who has never tried it before will be surprised at the exceeding minuteness of the orifice through which the object seems to be seen. As long as this orifice is no smaller than the pupil of the eye, the image seen in the microscope suffers no loss of brightness by its increased magnification; when, however, the orifice through which the object is viewed becomes smaller than the pupil, the image seen loses in brightness.

Supposing the diameter of the pupil to be about 1–12th of an inch, and the objective to have an aperture of 180 degrees, the amplification, to be equal to the pupil, would be 166.7.

The brightness of the image, as the magnifying power increases, diminishes in the following ratio:—

For an amplification of	166.7,	brightness,		1.
" " "	333.3,	"		1–4.
" " "	500.0,	"		1–9.
" " "	666.7,	"		1–16.

It will be easily seen that for the very great magnifying powers sometimes used there must be a great diminution of the brightness of the image, notwithstanding the appliances that are used to increase the light; and finally there must be a limit beyond which the amplification cannot go, from the fact that the image will be so dim as to prevent its structure being made out.

Along with this decrease in the size of the beam of light admitted to the eye is another difficulty, and that is the production of shadows within the eye itself. It is well known that if a narrow beam of bright light is admitted to the eye in a direction somewhat oblique to its axis, the shadows of the retinal vessels can be seen. Now, in the case of an observer who is examining an object highly magnified, a narrow beam of light passes into the eye, and the shadows of the retinal vessels thus produced, and appearing as a vail over the object, must, as a matter of course, impair the clearness with which it is seen.

There is still another difficulty connected with this same diminution of the orifice through which a highly magnified object is seen, and that is diffraction. We are all aware that if we look across the edge of a screen, at any brightly illuminated object, there appears a narrow shadowy fringe along the edge of the screen. This fringe is called diffraction, and is always found where light passes by the border of any object. If we place two edges so closely together that these diffraction fringes overlap, and look at any bright object through the opening, we shall observe a great impairment in the clearness with which it is seen. A convenient experiment is to make a small hole in a card, which is thick enough to be quite opaque; or to scratch a fine line on a piece of glass which has been covered with some black varnish, or covered with turpentine and smoked; and then to look through the hole at a printed page upon which a strong light has been thrown; it will be seen that the letters, which were visible with the greatest ease before, can now be scarcely read at all. The smallest aperture through which an object can be seen, without an overlapping of these diffraction fringes, and a consequent impairment of the image, is about one-twelfth of an inch. As we diminish the orifice, the details of the object become more indistinct. Now, this diffraction occurs around the edges of the orifice through which we look at images in a microscope, in exactly the same manner that it does around the edges of the orifice in the card through which we looked at the letters of our book, and when we come to the higher magnifying powers the orifice becomes exceedingly small. Supposing that the angular aperture of the glass is 180 degrees, the orifice through which we look when the object is magnified 1000 diameters is 1-50th of an inch; for 5000 diameters it is 1-250th of an inch. The impairment in the clearness of an image, seen through such holes, can easily be learned by trying the experiment of looking at the flame of a lamp through a hole of that size.

Another and more serious difficulty yet remains to be considered, and that is the modification which the light undergoes in passing through the object before it reaches the microscope. If the details of an object examined with a microscope are not less than 1-750th of an inch apart, the image of the object is seen in exactly the same way in a microscope that one would be in a telescope, and the image seen can be relied upon as being an accurate representation of the object; but if these structures approach closer than this distance, a certain part of the light suffers a change by diffraction, just as the light passing through the small hole suffers diffraction. When the details of the structure approach to within 1-12500 of an inch of each other, all the light passing through the object becomes diffracted. In this case its

direction is changed, and, in place of passing directly through the object, the light is spread out into a fan-shape, as it would be by a series of minute prisms.

If now we focus the microscope upon such an object as, for instance, a series of fine lines ruled on glass, and then take out the eye-piece and look down the tube of the instrument, we shall see in the centre of the object-glass an image of the object. If the lines are so finer than 1-75th of an inch apart, we shall see nothing else than a true image of the object, but as the lines grow finer, we shall begin to see coloured spectral images on each side of the true image, one after another appearing as the lines grow finer, and when the lines reach a fineness of 1-250th of an inch we shall have a complete series of spectral images extending to the right and left of the true image, beginning with the violet nearest to the true image and extending to the red furthest away. The distance of these spectral images from each other, and from the true image, varies inversely as the fineness of the lines; if the lines are not very fine the coloured spectral images will be close together, and the finer the lines the further apart will be the spectral images. If now we take out the eye-piece, and put a diaphragm down the tube of the microscope, just behind the object-glass, which cuts off a portion of these spectral images, and replacing the eye-piece, examine the object, we shall begin to see in the clearness of the appearance of the image. If we put in a series of diaphragms which cut off one after another of the spectral images, some of the details disappear with each one of the spectral images which is cut off, and when the diaphragm is small enough to cut off all the spectral images all the details disappear and the structure appears a blank. It is necessary, therefore, in order to make out any of the details of an object, that at least one spectral image shall enter the object-glass with the true image, and if the object-glass has not angular aperture enough to take in these two images, no structure can be seen, however great the magnifying power that may be employed. The value of angular aperture is not, therefore, that it allows great obliquity of light to be used, which causes light and shadow, and so shows the markings, but because it enables the objective to take in these spectral images which are caused by the most intimate structure of the object. Another way to put this is, that when the details of an object are so fine as to cause a diffraction greater to be taken in by any object-glass, the limit of possible vision is reached. This limit for an object of 180 degrees of angular aperture, used with light whose direction is very oblique to the axis of the instrument, is equal to one-half the length of a wave of light. With the use of the ordinary mixed white light this limit is not within 1-92000 of an inch. By the use of blue light alone this limit might be pushed to 1-122000 of an inch, which is the size of the smallest object that can, under any circumstances, be seen by a microscope theoretically perfect.

There are some other points that may be brought out by the use of these diaphragms. By cutting off one of the spectral images, a certain [illegible] image and the outer spectral images, the lines can be [illegible] multiplied in number. In objects marked with lines crossing each other at various inclinations, many different appearances, all apparently [illegible], can be produced by cutting off some of the spectral images by [illegible].

According to these investigators, therefore, we have a [illegible] the magnifying power of the microscope is no measure [illegible] will give a useful magnifying power greater than some [illegible] fessor Abbe thinks that a magnifying power of seven [illegible] all that can ever be used with profit.

Nobert's lines ruled upon glass at a distance of 1-112000 of an inch apart, have been seen, and that is as near the theoretical limit as we can ever expect to attain.

Finally, according to these investigators, we must revise the opinions we have had in regard to the details of the structure of many minute microscopic objects, and confess that there is no certainty that the image of them which we see in the microscope represents their structure truthfully.

It may be well to mention, however, that in one or two well-authenticated instances objects appear to have been seen finer than the limits considered possible by this theory.

II. BOTANY.

Electro-Magnetic Properties in Certain Plants.

The *Medical Press and Circular*, May 16th, 1877, states that the *Gazette*, of Nicaragua, publishes some notes on a plant of the order of *Phytolacca*, which is believed in that country to possess electro-magnetic properties. When a branch is cut the hand experiences a sensation like that of a Rumkorff battery. Surprised at this phenomenon, the author made an experiment with the aid of a galvanometer. At seven or eight paces distance the influence of the plant made itself felt immediately. The deviation of the needle was in the ratio of the distance; on closer examination the movement became irregular, and finally, when the instrument was placed in the centre of the branches, the rotation became accelerated. The soil underneath did not contain any iron or other magnetic metals, and there is no doubt that this quality is inherent in this plant. The intensity of this phenomenon varies during the day; at night it is almost absent; at two o'clock in the afternoon it attains its maximum, but in stormy weather its power increases. When it rains the plant withers. The author never saw birds or insects perched upon the *phytolacca electrica*.

Silphium Laciniatum—Compass Plant, Resin Weed.

The Nashville *Journal of Medicine and Surgery* for August, 1877, contains an extract from the MSS. of Materia Medica by Q. J. M. Goss, A.M., M.D., of Marietta, Georgia. It says:—

There are several species of silphium. This one, the laciniatum, grows on the open prairies of Illinois and Wisconsin, and southward and westward, and flowers in July. It is said that the lower leaves (cup-shaped) present their edges uniformly north and south. It is a rough and bristly plant, with a stout stem, pinnate leaves, petaled and clasping at the base. The heads are racemed and few. It contains a balsamic and resinous juice, which, when dry, resembles resin, hence called *resin weed*. The silphium perfoliatum—Indian cup-plant—is a large perennial-rooted plant, with smooth herbaceous stem, from four to seven feet high, bearing yellowish flowers, and an ovate winged achenium. It grows in the Western States, in rich bottoms, flowering in August. The root is long, large, crooked, and contains a bitterish gum. It is the part used as medicine. These are the two species used.

Medicinal Properties.—The silphium laciniatum has proven a valuable remedy for many diseases of the mucous membranes, as it has a direct affinity (like the balsams, turpentine, and cubebs) for the mucous tissues. In catarrh and chronic bronchitis it has a fine effect, allaying the irritation in bronchial inflammation, lessening the

frequency of the cough, and checking the excessive expectoration. In catarrh it relieves the mucous irritation, and aids other remedies in the final cure. But it is in asthma that it acts so charmingly: I have permanently cured several cases of confirmed asthma with these articles, alternated with ptelia trifoliata. A lady consulted me for asthma of long standing. I put her upon the tinctures of the silphium and ptelia, equal parts, and gave a teaspoonful three times a day, which relieved the disease in two months. I was called to a little girl, some fourteen years of age, who was laboring under a violent attack of asthma, for which I gave an emetic, which gave temporary relief of attack. I put her upon the tincture of the silphium trifoliatum—rosinweed—the saturated tincture of the root—and the tincture of ptelia, which has effected a final cure of the asthma. A lady, some fifty years old, applied to me for treatment for asthma of several years' standing. I gave her a teaspoonful of the tinctures of silphium the resin weed and ptelia trifoliata, three times a day, which has effected a complete cure, as she still lives near this city. A gentleman, from an adjoining county, applied to me for treatment of asthma of long standing, informing me that he had not slept in bed for fourteen years. I put him upon the tinctures of silphium and ptelia trifoliata; in three days he informed me that he had slept well in bed, and in two months he was dismissed cured. I am not certain that the silphium would cure the disease without the ptelia trifoliata, but I am certain that it will when combined as above. I am not certain which is the best, the silphium laciniatum or the silphium gumiferium—the resin weed. I present them for trial. I am now treating a case of long standing, and it is fast mending.

Pitury, a New Intoxicant.

The London *Medical Record* quotes from BARON VON MUELLER in the *Australian Medical Journal*, on the origin of the pitury, a stimulant said to be of marvelous power, and known to be in use by the aborigines of Central Australia. After years of efforts to get a specimen of the plant, he had obtained leaves, but neither flowers nor fruits. He can almost with certainty, after due microscopic examination, pronounce the leaves of the pitury as derived from his *Duboisia Hopwoodii*, described in 1861 (*Fragm. Phytogr. Austr.*, ii, 138). This bush extends from the Darling River and Barcoo to West Australia, through desert scrubs, but is of exceedingly sparse occurrence anywhere. In fixing the origin of the pitury, a wide field for further inquiry is opened up, inasmuch as a second species of *Duboisia D. Myoporoides* R. Br. extends in forest land from near Sydney to near Cape York, and is traced also to New Caledonia, and lately by him also to New Guinea. In all probability this *D. Myoporoides* shares the properties of *D. Hopwoodii*, as he finds that both have the same burning acrid taste. Baron Mueller adds: "Though the first known species is so near to us, we never suspected any such extraordinary properties in it as are established for the later discovered species. Moreover the numerous species of the allied genus, *Anthocercis*, extending over the greater part of the Australian continent and to Tasmania, should now also be tested, and further the many likewise cognate *Schwenkeas* of South America should be drawn into the same cycle of research, nothing whatever of the properties of any of these plants being known. The natives of Central Australia chew the leaves of *Duboisia Hopwoodii*, just as the Peruvians and Chilians masticate the leaves of the coca *Erythroxylon Coca*, to invigorate themselves during their long foot journeys through the deserts. It is not certain whether the aborigines of all districts in which the pitury grows are really aware of its stimulating power. Those living near the Barcoo [illegible]

days' journeys to obtain this, to them, precious foliage, which is always carried about by them, broken into small fragments and tied up in little bags. It is not improbable that a new and perhaps important medicinal plant is thus gained. The blacks use the *Duboisia* to excite their courage in warfare; a large dose infuriates them."

III. CHEMISTRY.

A New Mode of Making Gray Powder.

ALEXANDER BOTTLE read, at an evening meeting of the Pharmaceutical Society of Great Britain, December 6th, 1876, a paper upon this subject, which was subsequently published in the *Pharmaceutical Journal and Transactions*:—

With a slight alteration in the relative proportion of mercury to chalk, the formula for hydrargyrum c. creta in the British Pharmacopœia, and the direction for preparing it, remain the same as the formula and *modus operandi* recognized and practiced in the first half of the last century. We might from this fact be led to infer that the resulting combination was all that could be hoped for or desired, that it was uniform in its physical condition and reliable in its action, and that from its long and continuous use in medicine there would not be at the present day doubt in the minds of any as to its medicinal value, or difference of opinion regarding the mechanical subdivision or chemical combination of the metal to which its therapeutical action might be more fairly attributed; and yet I venture to assert that there is no preparation in the British Pharmacopœia about which more diversity of opinion has been entertained, and still exists.

Some sixteen years ago Professor Redwood favored us at one of these evening meetings with the gratification of listening to a paper on "Gray Powder." It was one of those valuable contributions to pharmacy for which we, as pharmacists, have been upon very many occasions indebted to him. It is printed in the *Pharmaceutical Journal* (2), vol. i, p. 504. He therein shows, as the result of his examination of six samples of gray powder, that five of them contain oxides in abnormal excess, and suggests the use of sugar of milk as a probable preventive of this tendency to oxidation (a suggestion which appears to have been adopted by our transatlantic cousins), and concludes with a promise to return to this subject hereafter. May I venture to hope that he will deem the opportunity I have now afforded him a fitting occasion to do so?

It has appeared to me that minute subdivision, and not oxidation, of the metal has been the intention of the pharmacopœia process, and that this result is capable of being obtained by a strict adherence thereto; but the process is uninteresting, monotonous and wearisome. I can recall to mind a time when I, as an apprentice, was first set to make this preparation, and that I looked upon it as a punishment worthy of the Inquisition.

In modern times it is, I believe, exceptional to find it made on a comparatively small scale by the pharmacist for the requirements of his own establishment; as a matter of convenience he purchases it from the wholesale houses, by whom it is made in large quantities, and to this I have for a long time past been led to attribute very much of the variation in the condition of the mercury found in different sam-

ples of the powder. The quantities directed in the British Pharmacopœia can be prepared with a result containing a very small percentage of mercurious oxide, and a mere trace, if any, of the mercuric; but when made on a large scale by steam power the heat eliminated by the friction, and pressure of heavy stones, favors, in a marked degree, metallic oxidation, and the powder so prepared and afterward kept for indefinite and comparatively unlimited periods is that in which, more especially, the peroxide in abnormal quantity is found.

Impressed with the conviction that it is alike our duty and to our interest to avoid the use of a powder containing mercury in the higher state of oxidation, and that in every dispensing establishment it is desirable to have hydrargyrum cum creta prepared at intervals not too far apart, I venture to suggest a slight deviation from the British Pharmacopœia process, to the extent of substituting for the slow process of trituration in a porcelain mortar, active agitation in a wide-mouthed glass bottle, by which means the British Pharmacopœia quantity may be prepared and the metal minutely subdivided, with an expenditure of very little, if any more, time and labor than is required to be devoted to the preparation of a tincture.

In the discussion which followed the reading of this paper, in which Prof. Attfield, Prof. Redwood, Messrs. Umney, Bottle, Greenish, and others, took part, it was granted that the hydrargyrum cum creta of commerce is always of uncertain composition, and often contains varying quantities of peroxide, a contamination which no doubt often gives rise to serious results. As to what the exact composition should be, no one could satisfactorily determine, but it was thought probable that if the powder answered to the test of the Pharmacopœia, which could be easily and quickly applied, it would answer every purpose. Prof. Redwood said that some manufacturers were in the habit of preparing the powder by putting the ingredients, together with some round stones, in a cask, fitted with an axle, and rotating the cask for an indefinite length of time, perhaps for weeks; in this way the preparation was unduly exposed to the air, and oxidation of the mercury probably resulted. Mr. Umney said that by triturating the ingredients under millstones, relieving the powder of the weight of the stones by means of a screw, he had often prepared ninety pounds of gray powder in four or five hours. He thought that the use of damp chalk might accelerate oxidation. In answer to an inquiry, Mr. Bottle said that in order to determine the condition of the mercury, and the probable termination of the process, he adopted the method taught him when an apprentice, which was to moisten his finger with saliva, and taking up a small portion of the powder, to spread it upon a piece of writing paper and examine with a lens. One of the members present said that in preparing the powder he had operated very satisfactorily by a method similar to that given by Mr. Bottle, but he finished the trituration in a mortar. The main points brought out by the discussion were that pharmacists should either prepare the powder themselves, or apply the pharmacopœial test to any that might be purchased.

Note on the Chemical Study Of Cotton Root.

John K. Foulkrod reports his investigations of the cotton root to the Philadelphia *Medical Times*, September 1, 1877:—

The bark of the root was reduced to a coarse powder, then digested in water strongly acidulated with sulphuric acid. It was then filtered, the liquid being of a red color. Ammonia was added until the precipitate ceased falling; the precipitate was of a purple color. The precipitate was collected, washed, and added to water

acidulated with sulphuric acid, with the hope that it would form the sulphate of the alkaloid, if there should be one; but I was not successful. The bark of the root, reduced to a coarse powder, and macerated in water, was then thrown upon a filter; the filtrate was of a deep red color; to this was added acetate of lead until the precipitate ceased falling. It was again filtered; the solution was treated with sulphuretted hydrogen gas, to precipitate the lead, and was again filtered; the solution was evaporated over a water bath, but I did not succeed in finding an alkaloid.

Being unsuccessful in finding an alkaloid, I then experimented for a resin.

A portion of the bark of the root was exhausted with alcohol. The tincture was of a deep red color; it was then distilled, to separate the alcohol. After removing the alcohol there was left a dark red resinous mass. The resinous mass was removed, and reduced to a coarse powder. The resinous mass was found to be insoluble in alcohol, chloroform, ether, and aqua ammoniæ, but soluble in a solution of caustic potassa.

A portion of the bark of the root was macerated in cold water, and the solution was tested for the following:—

Tannic acid. Sulphate of iron gave the blue-black color.

Starch. Tincture of iodine gave the characteristic color of the iodide of starch.

Vegetable albumen. Corrosive sublimate and heat.

Grape sugar. Sulphate of copper and solution of potassa.

The bark also contained a red coloring matter, soluble in water, ether, chloroform, and alcohol.

When ammonia is added to a solution of the coloring matter in water containing a few drops of sulphuric acid, it turns quickly to a deep purple. On adding a few drops of an acid it resumes its original red color. This action is somewhat like that of litmus.

IV. TOXICOLOGY.

Poisoning by Sulphate of Copper.

The following case is reported by Dr. J. F. Horne in the *British Medical Journal*, September 1st, 1877:—

On May 24th, 1877, I was requested to see E. H., aged 8, and A. H., aged 6, whom I found in bed, each with raised temperature, coated tongue, no rash visible, with vomiting at frequent intervals; the latter seemed to be the milk given as food, unchanged. On inquiry into the previous history of the cases, I found that on the afternoon of Whit-Monday (May 21st) the children had visited a relative at his farm, a little distance from the town. Left to their own enjoyment, they regaled themselves with unripe fruit in the garden, and afterward, finding some wheat in a spare room, also partook of this. They were both shortly afterward seized with vomiting. As this seemed to be the unripe fruit and wheat, the mother felt no cause for alarm; but, as they still continued ill, and the vomiting remained, she thought it better for me to see them. With the above symptoms, I was somewhat puzzled to account for the obstinate vomiting, the food being regurgitated back as soon as taken, and never after they came under my care, of a blue or green color; but, on further investigation, I found that the corn they had eaten was part of the prepared

wheat remaining of the "spring-sowing," and that the preparation consisted of soaking in a strong solution of sulphate of copper.

They were given drop doses of the wine of ipecacuanha with lime water and mucilaginous drinks, under which treatment the elder child was in a few days convalescent. The younger became very prostrate; the temperature still raised (102 degrees Fahr.); the bowels exceedingly constipated; vomiting daily, although other remedies were tried. I could not detect any lesion of lung or intestine. This continued for about ten days, when her health began to improve, and she was ordered milk and limewater, beef-tea, wine, with carriage exercise. Her friends about this time removed from the neighborhood, and I did not see her again until July 7th. She had become much emaciated, and was ordered cod-liver oil and nourishing food. I find she became much worse on the 27th, and died on July 30th in a convulsion. No post-mortem examination was made.

Poisoning by Laburnum.

The following case is given in the *Lancet*, September 1st, 1877, by Dr. A. M. ROBERTS:—

J. W., aged five years, ate a hearty tea at 6 P. M. At 7.30 P. M. he had a thick slice of bread and butter. At 8 P. M. he was known to have eaten a quantity of laburnum seeds, saying they were peas. The parents, not being aware of their poisonous properties, were not alarmed. At 9 P. M. the child commenced to vomit. When seen at 9.30 P. M. he was very drowsy; the skin cold and clammy; pupils contracted; complained of no pain; pulse 108; axillary temperature 97.5°; respiration 22. The vomit appeared to be bread and mucus, mixed with a quantity of vegetable matter. I ordered an emetic of sulphate of zinc with sal volatile, which acted freely in ten minutes, the vomit consisting solely of water and a large quantity of mucus. Ordered a mixture of ether and ammonia every fifteen minutes. 10.15 P. M.: Drowsiness increasing; pupils dilated; pulse 130, very weak; respiration 25; rectal temperature 96°. Ordered strong coffee, which was immediately vomited. 10.30 P. M.: Cannot be roused for more than a few seconds; skin very cold, and bathed in perspiration; pupils widely dilated, and not sensitive to light. Given a hot bath, and hypodermic injection of caffein. Stimulant medicine continued. From this time recovery was rapid, and at midnight the child was awake and rather lively; skin appreciably warmer to the touch, but bathed in perspiration; pulse 108; respiration 20; rectal temperature 97.5°; pupils much dilated, but sensitive. At 2 A. M., all symptoms appearing to have passed off, the child was allowed to sleep, and awoke the next morning in its usual health. The pupils, however, remained dilated for twenty-four hours longer.

The symptoms would, no doubt, have been more severe, but for the presence in the stomach of a large quantity of food, and the rejection of the whole of the vegetable matter with it.

On Mushroom Poisoning.

At a meeting of the Academy of Medicine of Paris in March, 1877, Dr. ORÉ presented a note on experimental researches on poisoning by agaricus bulbosus. In this memoir the author examined: 1. The nature of the true principle of agaricus bulbosus. 2. Its mode of action on the organism. 3. The remedies by which it can best be combated. The true principle of agaricus bulbosus is in effect similar to the salts of strychnia. Whether the fresh mushroom, or dried specimens, or vine-

gar in which this poisonous mushroom had been macerated were used, whether it were taken into the stomach or used in subcutaneous or intravenous injections, the results were the same. Intravenous injection brought on almost immediately convulsive fits, which, by the suddenness of their appearance and their rapidly fatal progress, brought to mind the diverse phases of strychnic tetanus. Solutions of the poisonous solanaceæ in presence of animal charcoal give up to it their alkaloid; the same thing occurred with macerations of agaricus bulbosus. The author concluded from these researches that agaricus bulbosus heightens the excitability of the motor and vaso-motor portions of the spinal axis; by directing toward these centres an antagonistic substance, chloral, for instance, this action may be prevented.

Poisoning by Santonin.

Though poisoning by santonin is novel, yet the very widespread use of this drug as a vermifuge gives value to a case quoted in the London *Medical Review.*

The following were the symptoms in the case of a child aged twenty-five months, described by BINZ and BECKER in the *Archiv für Experimentelle Pathologie und Pharmacologie,* 1877: Ten hours after swallowing one and a half grains, there were left external strabismus, twitchings of the angle of the mouth, eyes and eyelids, dilatation of the pupils, especially the left; after some minutes, clonic cramps of the left upper extremity, beginning in the fingers, and loss of voice; after fifteen minutes, tonic cramps of the left eye and arm, followed by general convulsions. From time to time there were short intervals of freedom from the cramps. Later on, spasmodic contractions of the thoracic and abdominal muscles set in, with marked slowing of the respiration, accompanied by stridor, but the heart's action remained strong, and the pulse was almost normal. After lasting about five hours the cramps disappeared, but reappeared to a less extent, with diminishing severity, for the following three days. All this time the urine was intensely greenish-yellow colored.

Experimenting with frogs, Binz found that sodium-santonate, in poisonous doses, produced general prostration, cessation of respiration, and, later, convulsions of the trunk and extremities, which were unaltered by the removal of the cerebral hemispheres, but which ceased entirely when the medulla was excised. The heart at first was unaffected, but after a time came to a stand-still in diastole. The general insensibility that first showed itself was soon followed by paralysis of the nerve-centres, later by irritation of the middle brain and medulla, and finally by general paralysis.

Warm-blooded animals exhibited the same class of symptoms as those manifested in the child—sudden cramps, rolling of the eyes, gnashing of the teeth, opisthotonos, passing into cramps of the trunk and extremities, and slowness of respiration—these attacks being succeeded by periods of remission. The parts chiefly affected seemed to be the cranial nerves, from the second to the seventh, the middle brain, and subsequently the medulla. Santonin does not appear to act as a heart poison in the ordinary sense.

In Ziemssen's *Handbuch* the treatment laid down is alcohol, artificial respiration, friction of the skin, warm baths, and cold applications to the head. Of these, artificial respiration is the only treatment Binz found of any value. He tried also amyl-nitrite, morphia, chloral-hydrate, chloroform, and ether, but only the last three proved of service. Ether he recommends to be given to overcome the cramps, and at the same time chloral-hydrate, which acts more slowly as an antidote, but with more permanent benefit.

Poisoning by Veratrum Viride.

Dr. J. STEELE BAILEY, of Stanford, Kentucky, read before the Central Kentucky Medical Association, April 18th, 1877, the history of a case of poisoning by veratrum viride, which appears in the July number of the New Orleans *Medical and Surgical Journal*:—

The poisons which the general practitioner is called upon to encounter most frequently belong to the organic kingdom, and upon the promptness with which they are ejected from the stomach depends the safety of the patient; for the dangerous effects of all such substances advance in a very increasing ratio with the time they remain in contact with an absorbing surface. The vegetable poisons—those which act through the medium of the circulation, and are rapidly absorbed when introduced into the system in a liquid form—produce effects equally imminent; yet the treatment of such cases, while similar in principle to that pursued with organic medicines as relates to the importance of emesis, must be conducted with a less overweening confidence in remedies as antidotes, allowing for them, however, much value as auxiliaries.

The infrequency with which cases of poisoning by vegetable substances are met in this region has induced me to bring before this association a report of the following case, showing how readily alarming and destructive symptoms, if not death, may be produced by the incautious use of such a potent remedy as veratrum viride is known to be.

A rather intelligent colored barber, thirty years of age, who takes the daily papers and keeps himself posted on the current events of the day, contracted a cold during the month of January last, from the effects of which he suffered considerably. He told me that for several mornings preceding the accident which I will relate, he arose with a dull headache; was feverish; his nostrils were "stuffy;" he suffered with pains in the muscles of the chest and back; had a very annoying cough, with expectoration of frothy and tenacious mucus, characteristic of the first stage of catarrhal inflammation.

This "dry" cough after a few days gave place to a moist one, by which a loose secretion was readily thrown off. Being a "public gentleman," the cough annoyed him exceedingly, since he was continually "barking in the faces of the customers" whom he was shaving and trimming.

Being of an economical turn and possessed of much self-reliance, he concluded to cure himself without the aid and expense of a doctor. He remembered to have seen in the columns of his favorite, the *Commercial*, a few days before, the very thing of which he was in need. He searched the paper, found the article, and saw from its reading that the prescription was most excellent for coughs, colds, and consumption. He knew he had a cough, and that he *might* have consumption. He copied the prescription, carried it to the pharmacy, procured the medicine, took it to his shop, and began its use. This was about 3 o'clock P. M. February 5th. I was called to see him at 1 P. M. following, and found that he had acted upon the principle that if a little would do good a quantity would effect complete relief sooner.

I found him in a condition approaching collapse. He was bathed in cold, clammy perspiration, vomiting at intervals of three and five minutes; heart acting feebly, almost inaudibly (a cramped heart, as it were); pulse at the wrist making sixteen beats per minute. After I had been in the room a few minutes he summoned sufficient energy to speak, and complained of pain over the precordia, muscular cramps

of the lower extremities, and a peculiar sensation of faintness. He was so feeble that I could scarcely hear him articulate.

After this conversation and a hurried examination of his condition, I felt sure that "something had gone wrong" with him, and inquired what he had been taking, to which he replied, "Nothing but a cough mixture." On inquiring where he had procured it, and if he knew its composition, he told me the source of the prescription as above related, and I found its composition to be as follows: Tincture American hellebore, tincture lobelia, syrup squills, and simple syrup—two and a half drachms each of the tinctures, one ounce of syrup of squills, and two ounces of simple syrup. The directions were a teaspoonful three times daily, which would have given him about five drops of the tincture of veratrum viride at each dose. He had taken it, however, in teaspoonful doses every half hour, until the contents of the vial were exhausted, which had occurred at 10 o'clock P. M. At this time he began to feel very weak and sick, as he expressed it, and went to bed and to sleep.

At about half-past eleven o'clock he was awakened by a great rush of fluids from the mouth. The vomiting was without warning or effort, and for a time was almost continuous. Feeling so strange about the head, and so faint that he thought he would die, he tried to awaken a boy who slept in an adjacent room, by calling, but could not do so. He tried to get out of bed, but his legs failed him. After the lapse of half an hour he succeeded in crawling to the boy and making his wishes known—"to go and bring the nearest doctor." I reached him at 1 o'clock A. M., and found him in the condition already described.

Recognizing his condition as extreme and dangerous, and seeing that something must be done for his relief promptly, I adjusted my tackle with reference to the direction and force of the storm. I gave him a hypodermic injection of one-half grain of morphia, applied mustard to the epigastrium, the nucha, the spinal column, the wrists and ankles, and gave per rectum one ounce of whisky with ten grains of quinine. As I observed him, there would occur at intervals of four or five minutes a regurgitation of a mouthful of fluid resembling the albumen of egg; his eyes were rolled under the orbits so that the sclerotics only were visible; the sighing was frequent and profound; and the pulse was proportionately less than the breathing, the perversion being to the extent of twenty pulsations to thirty-two respirations, which were shallow. In twenty minutes' time I could plainly see that the remedies which I had administered were having good effect upon his condition. The vomiting ceased, the skin became warmer, and the perspiration less copious; the sighing gave place to easy respiration, the heart became steady, its action forcible, while the pulse rose gradually in frequency and volume. A feeling of repose replaced the nervous agitation which had possessed him, and prior to my leaving him the pulse and respiration ratio did not differ markedly from that of health. I left him at 2½ o'clock A. M., ordering his attendant to inject one ounce of diluted whisky into the bowel at the end of an hour.

On visiting him next morning he complained of slight headache and nausea, with dryness of the mouth. The heart was acting with almost its accustomed force and frequency.

He recovered promptly from the effects of the veratrum viride, but his cough persisted, and he is now suffering with that bane of his race, mesenteric phthisis.

Veratrum viride belongs to that class of drugs which enter the circulation, and act through that medium upon the heart, and, as was formerly supposed, upon the brain and alimentary canal. These organs—the heart, brain, and alimentary canal

-are affected in very different degrees by different poisons, or even the same poison nder different circumstances.

Sir Benjamin Brodie, a physiologist of the long ago, but a very able one, has hown that certain vegetable poisons, when introduced into the alimentary canal, ffect life in consequence of the nervous connection existing between this surface nd the sensorium; yet the same poison applied externally to a wounded surface cts exclusively through the medium of the circulating blood. The statement, how-ver, made by various authors, that after a poison has found its way into the blood t attacks a particular organ, or set of organs, we find clinically true, as is exem-lified in the case just related.

The preparations of baryta and antimony affect the heart, and produce death by syncope. Arsenic is less definite in its action, influencing both the brain and the heart, but with varying degrees of force, so that it is difficult to determine which of these organs first fails in function. Hydrocyanic acid destroys life by its action upon the nervous system, whose energies it would seem to extinguish without ostensible injury to any particular organ.

Veratrum viride seems to have a special affinity for the heart, and is a powerful spinal and arterial depressant, exerting but little influence upon the cerebral centres. It diminishes the force of the heart, and lowers the pulse-rate by a direct action upon the cardiac muscle and by stimulating the inhibitory nerve, and produces general vaso-motor paralysis, more or less complete according to the size of the dose. The preparation taken in the instance herein related was Norwood's Tincture, which contains twelve ounces of the root to a pint of alcohol, and is the strongest preparation in the market. The cumulative effect of the drug is one of its distinguishing characteristics, and makes it a dangerous agent in the hands of unskilled persons. It sedates and weakens the heart, as does the lancet, but, unlike the lancet, it leaves the same quantity of blood in circulation; hence the same labor to perform, but with less power, on the part of the central organ.

A peculiarity in the action of veratrum viride is that emesis is usually slower in occurring than from any other emetic medicine. In the case alluded to above, it was an hour and a half from the time the last dose was taken, and eight hours from the first, and even then the vomiting was effected by a spasmodic contraction of the stomach itself, without participation of the diaphragm and abdominal muscles. Another peculiarity is that it seldom, if ever, purges, and in this case the lobelia contained in the prescription was not sufficient to produce catharsis in a person of constipated habit, as was my patient. Doubtless, if my patient had been in robust health, he would not have experienced such alarming symptoms, but his diathetic state, associated with tuberculosis and its accompanying dyspepsia, rendered him susceptible to the toxicological action of the drug.

Extraordinary Tolerance of a Poisonous Dose of Chloral Hydrate.

A case of interest is communicated to the Boston *Medical and Surgical Journal*, September 6th, 1877, by PHANUEL E. BISHOP, M. D., of Pawtucket, Rhode Island. He writes:—

On the evening of the 12th of July, Mr. P. R., of Irish parentage, aged thirty-two, a glazier by trade, came into my office suffering from nervous prostration and loss of sleep, consequent upon the free use of alcoholic liquors. He had been drinking more or less every day since the 4th. He did not present any marked

symptoms of delirium tremens. I prescribed strong coffee, b ef tea, aromatic spirits of ammonia, and gave him twenty grains of Dover's powder to take at bedtime.

I saw no more of him until the next evening, when I was called to his home. I learned from his wife and others that h e had not slept for sixty hours. He presented a typical case of delirium tremens, with all the mental aberrations, illusions, hallucinations, etc., which usually accompany the disease. I wrote the following prescription, which is the one I usually give in like cases :—

R.	Chloral hydrate,		℥ss	
	Ext. scutillariæ fld.,		ʒj	
	Syr. zingiberis,	adde q. s. ut ft. mist.	ʒij.	M.

Sig.—A teaspoonful in an ounce of brandy every half hour until the patient sleeps.

I was hastily summoned again shortly afterward, and upon arriving found that in a few minutes after receiving the first dose he had seized the bottle from his wife's hand, and before he could be prevented had swallowed ten drachms of the mixture, making a trifle over eleven drachms in all. I immediately stirred three tablespoonfuls of ipecac root (about half an ounce) and one teaspoonful of the sulphate of zinc (fully one drachm) into about a pint of warm water, and with great difficulty compelled him to swallow it. It produced no effect whatever, as far as emesis is concerned. I was unable to procure a stomach-pump.

A Catholic clergyman had been summoned, and, as I had unhesitatingly given my opinion that he could not survive, the last rites of his church were administered. Shortly afterward he sank into a profound sleep, to aróuse him from which many things were tried in vain.

During the first hour his pulse rose to the highest point, namely, 132. In the third hour it had come down to 88, and there remained unchanged, full and soft. The temperature was often taken, and never varied from 99° Fahrenheit. This is perhaps the most remarkable feature in the whole case, as I have always noticed a diminished temperature following even a dose of ten grains. He slept thirty-six hours. At the end of eighteen hours we were enabled to arouse him so that he could take liquid nourishment in abundance, but to keep him awake for a few minutes was simply impossible. I never before have witnessed such profuse diaphoresis as was presented in this case. During sleep the whole body was constantly bathed in a warm perspiration. I attributed this to the enormous doses of ipecac and zinc, and queried in my mind whether or not they exercised any influence in saving his life. When I had carefully ascertained how large a dose had been taken, I naturally supposed the mixture to be deficient in strength. I put one drachm into a draught for a lady, and she slept soundly for ten hours. Two days afterward I was called to another man suffering like Mr. R. This man had not slept for thirty-six hours. Four doses given at intervals of fifteen minutes caused a natural profound sleep of eighteen hours' duration, followed by complete recovery. The amount taken by Mr. R., a trifle over *one hundred and sixty-five grains*, is the largest dose which was not fatal that I have ever heard mentioned or read of in any medical work in my library; and that there should not arise one single alarming symptom, such as diminished temperature, sighing respiration, a slow, feeble pulse, or pallor of the features, renders the case remarkable. It is needless to add that Mr. R. awoke entir ly relieved from his trouble.

Notes on a Case of Chronic Chloral Poisoning.

Mr. T. INGLIS, M.R.C.P.E., Royal Edinburgh Asylum, gives the following case in the Edinburgh *Medical Journal*, September, 1877:—

F. S. P., aged forty-seven, shopkeeper, admitted to the Royal Edinburgh Asylum, under certificates certifying that he was laboring under "great mental debility, impaired memory, was noisy, at times violent, and had delusions."

Family History.—Patient's father died of kidney disease at an advanced age. Mother "nervous," died of paralysis. Two sisters neurotic and eccentric. A brother was a confirmed dipsomaniac, and died of brain softening. Patient is a man of average intelligence and business capacity, of a neurotic temperament. Had generally enjoyed good health, but has been subject to asthma. His habits were temperate, and till three weeks before admission had been "teetotal" for ten years.

History of Present Attack.—About seven years ago patient was ordered by his medical attendant a mixture containing the hydrate of chloral and the bromide of potassium, in order to relieve a spasmodic retention of urine, of which he then complained. He took about a drachm of each of these drugs daily, for six years, regularly, and during that time neither he nor his friends observed any hurtful effects, either mental or bodily. Patient confesses, however, that the drug had enslaved him to some extent, as he felt a desire for its sedative effect apart from its medicinal action, somewhat akin to the drink-craving of the habitual tippler.

Six years after patient began taking chloral he had an attack of bronchitis, and was ordered a mixture containing chloral (no bromide this time) to allay the breathlessness and procure sleep. The recovery from the bronchitis was rapid, but at the same time extra business cares, and the death of his brother, brought on some mental depression, and he sought oblivion in chloral. At first a 60-grain dose was the quantity taken, but was gradually increased till he took 180 grains per diem. Till six months before admission he was able to attend to and transact business, carrying the bottle with solution of chloral in his pocket, and taking a dose every hour, or even every half hour. The sedative effect of the chloral was produced in from five to ten minutes, and lasted from half an hour to an hour. He never exceeded a dose of ten grains at a time, or took a larger one at night, but if he chanced to waken he repeated the dose. Sleep was not induced, but a calmative soothing feeling; and with each dose a dreamy sense of comfort and *bien-être* stole over him, seeming to raise him above the cares and anxieties of life. The effect seemed to be somewhat akin to that of opium, except that there was no tendency to sleep. He complained of no headache, vertigo, or active sense of depression as a result of the drug, but a feeling of lassitude and nervous debility and exhaustion arose, together with an inaptitude for work, and incapacity for continuous thought. He became irritable and peevish, and when anything occurred to annoy him chloral was his sole panacea.

There was also permanent weakening of the digestive powers, his appetite declined, food lost its relish, and he took little nourishment. Nausea and sour eructations were complained of, and vomiting occurred frequently. He began to be troubled with piles, and the fæces became hard and white. He had slight jaundice, but no flushings, cutaneous congestion, or rush. During all this time he took no stimulants.

As he abandoned himself to the fascination of chloral eating, and the "tyrant

custom" grew upon him, his friends observed, together with the intellectual enfeeblement, a distinct moral alienation, a perversion of his whole mental life and character. He became untruthful, deceitful, the natural affection for his wife and children became blunted, a diseased dislike taking its place. He grew irritable and passionate, and at times threatened violence to his wife. In spite of her entreaties he would leave the house and wander aimlessly about the streets, not knowing whither he went. He became regardless of duty and self-respect—in short, he had drifted imperceptibly into moral insanity.

Three weeks before admission he discontinued using the chloral, and took to whisky instead. He did not drink enough to produce complete intoxication, but sufficient to keep himself in a chronic condition of muddle and confusion. In a day or two he became restless, excited, and quite unmanageable. Diarrhœa set in, and was followed by a great discharge of blood from the bowels. He grew violent and impulsive, and threatened suicide. Then he got into a state resembling delirium tremens. The special senses became perverted, imaginary voices mocked him, while spectral snakes and loathsome animals surrounded him. Sleep almost deserted him, and was broken by haunted dreams "with dreadful faces thronged, and fiery arms."

This terrible condition was terminated by three severe epileptiform attacks, following each other at intervals of four hours. The paroxysms were of the true epileptoid type, and were attended with complete unconsciousness, arrested respiration, clonic convulsion, and tonic spasm. He foamed at the mouth, and bit his tongue severely. The after-stage of stupor succeeded, leaving him in an extremely weak and precarious condition. Rallying, he again became noisy and excited, and was sent to the hospital, but was discharged, as the maniacal outbreak was transient, and as not being a fit patient for a hospital. He was then sent to the asylum.

State on Admission.—Patient is a man of average height and development, and appears prematurely old and broken-down. Is in a very weak, anæmic state, being unable to speak above an undertone, and can hardly walk. Expression blank and vacant. Eyes dull and meaningless.

Mental.—The predominant mental symptom was great enfeeblement of mind. He was perfectly silly and childish, and almost imbecile in manner. There was no excitement, but rather slight depression of mind. He was very emotional, and would laugh and cry alternately without adequate cause. He took no interest in what was going on around him. His replies to questions were rambling, disconnected, and often incoherent, he being unable to sustain a conversation of any length, or carry out a consecutive line of thought. Memory was much impaired, indeed, almost obliterated; he could not tell his age, or where he came from. Had vague fleeting delusions on various subjects, as that the Queen took a special interest in him.

Bodily Nervous System.—There was persistent muscular tremulousness of the upper and lower extremities, causing great unsteadiness, so that he required assistance to be able to walk, and the finer acts of co-ordinate power, as writing, whistling, could not be performed at all. The tongue was furred in the centre, tremulous throughout, with fibrillary twitchings at the edges, and was pointed markedly to the right side. Articulation was impaired, being thick and indistinct. The pupils were equal, dilated, irregular at the margins, and insensible to light.

The right side of the face was partially paralyzed and wanting expression. The reflex action of the cord was much impaired. Common sensation was acute, verging on hyperæsthesia. He complained of sleeplessness and exhaustion, but had no headache or neuralgic pains.

There was no cutaneous eruption. Muscularity poor and flabby. Conjunctivæ yellow. Respiratory and circulatory systems normal. Pulse 67, weak and thready. Temperature 97°. Urine, specific gravity. 1.005. No albumen, sugar, bile, or tube casts. Could only make water at night, when it was passed in large quantity; was clear and limpid, resembling the urine of hysteria. Bowels were again confined, fæces hard, and of a white color.

Progress of Case.—No chloral or any narcotic was given after admission, and, in spite of the patient's pleadings for soporifics, they were entirely withheld. For some nights he hardly slept, but had short snatches of sleep during the day. Was ordered a tonic mixture containing strychnine, strengthening diet, and as much exercise in the open air as he could bear. The regular action of the bowels was promoted by gentle aperients, active purgation being avoided, it being considered that the constipation resulted from the partial paralysis of the trophic centres.

The appetite for food returned slowly, but he gained in flesh and appearance very rapidly. Pulse increased in strength, and the temperature rose to 98.4° Fahr. in a few days. The motor tremulousness and the paralytic symptoms disappeared in an astonishingly short time. the disturbance of the articulation and the facial paresis passing off first, while the reflex action and sensation more gradually recovered their normal tone. Pupils remained dilated for about three weeks, but their outline became regular, and they contracted normally under the influence of light in a few days.

Mentally his convalescence was equally speedy. The delusions were dissipated in a day or two. Memory and coherence soon returned, the recollection of the events during the latter part of his illness remaining a perfect blank. After a short stage of stupor and confusion his intellect regained strength by degrees, and his emotions and affections resumed their natural condition. He was discharged "recovered" three months after admission.

Recent Progress in Toxicology.

Dr. E. S. Wood, in a series of articles on recent progress in medical chemistry, in the Boston *Medical and Surgical Journal*, says of toxicology, in the number for July 12th, 1877, as follows:—

Fuchsine in Wine.—Numerous processes have been given for the detection of fuchsine in wine, and the subject has been considered of so much importance in France, on account of the liability of this coloring matter to contain arsenic, that the selection of the most convenient and best method for its detection was referred to a committee of the Société de Pharmacie, consisting of MM. Latour, Yvon, Wurtz, and Marty, whose report recommends two methods for detecting this fraudulent adulteration. One, called the Roméi process, which is sufficient for ordinary commercial work, consists in adding to fifty cub. cent. of the suspected wine ten cub. cent. of a solution of subacetate of lead (specific gravity = 1.320), warming and filtering. After the filtrate has cooled add ten drops of acetic acid and ten cub. cent. of amyl alcohol, and shake the mixture vigorously. The amyl alcohol after separating from the wine will be found to be colorless if the wine were pure, but if it contained fuchsine the amyl alcohol will be colored rose or cherry-red; if rosolic acid (another aniline product) the color will be yellow, and if litmus the color will be rose or violet. Decant a portion of the amyl alcohol into a test-tube, add an equal volume of diluted ammonia, and shake. If the amyl alcohol becomes decolorized, and the ammoniacal solution remains colorless, the coloring matter present

must have been fuchsine. If, however, the amyl alcohol becomes decolorized, but at the same time the ammoniacal solution is colored violet-red, the coloring matter present was rosolic acid, or if colored blue-violet, litmus.

The second method is the most delicate, and is the one which should be performed in all legal analyses. This method was first proposed by Falières, afterward modified by Jaquemin and Ritter, and still later by Fordos. It consists in adding to ten cub. cent. of the suspected wine ten drops of ammonia water, shaking, and finally adding ten cub. cent. of chloroform. The ammoniacal solution and the chloroform should be gently mixed together, and the mixture poured into a burette or a separating funnel. When the chloroform has separated, it is to be drawn off into an evaporating dish and evaporated, a couple of threads of silk being first introduced. On the evaporation of the chloroform the silk becomes dyed with the fuchsine. By this method the fuchsine can be detected in wine when it is present in the proportion of 0.00005 gramme to the liter, or one part in 20,000,000. If the coloring matter on the silk is fuchsine it becomes decolorized by a drop of ammonia water.

When only traces of fuchsine are present, the most delicate method for its detection is that recommended by Bouilhon, but it has the disadvantage of requiring a large amount of wine. This method is to evaporate five hundred cub. cent. of the wine to about one hundred and twenty-five cub. cent.; add twenty grammes of crystallized baric hydrate, shake, filter after the mixture is cool, and wash the precipitate until the filtrate has a volume of one hundred and twenty-five cub. cent. This filtrate should be shaken in a flask with fifty or sixty cub. cent. of ether. Decant the ether into an evaporating dish, add to it three or four drops of dilute acetic acid, and submerge in the mixture a bundle of white silk composed of ten threads one c. in length. If much fuchsine is present the ether will become colored immediately on the addition of the acetic acid, but if only a trace is present the silk will become colored only after the evaporation of the ether, in which case the aqueous fluid remaining should be warmed gently, which facilitates the fixing of the color upon the silk. In this manner one part of fuchsine in one hundred million parts of wine (0.00001 gramme = about $\frac{1}{655}$ grain in one liter) can be detected.

As to the physiological effect of pure fuchsine authorities differ. The weight of evidence, however, is greatly in favor of its being entirely harmless. MM. Feltz and Ritter state that it will produce albuminuria in both man and animals. In their experiments upon dogs they found in the urine albumen varying in amount from seven to thirty-two parts per one thousand, granular, fatty, and sometimes epithelial casts. After death they observed degeneration of the cortical portion of the kidneys. These results have not been seen by other investigators. MM. Bergeron and Clouet deny that such results are produced by pure fuchsine, and consider them due to arsenical contamination. Eulenberg and Vohl also consider pure fuchsine harmless.

Arsenic.—Rouyer has made some experiments upon the fatal dose and antidote of some of the compounds of arsenic. He finds that, although the freshly precipitated sesquihydrate of iron is an antidote for arsenious acid, it has no effect in counteracting the action of sodic arsenite or potassic arsenite (Fowler's solution), but that a mixture of the solution of the sesquichloride of iron and the oxide of magnesium will counteract the effect of these salts as well as of arsenious acid itself, and hence this mixture is always preferable to the hydrate in cases of arsenic poisoning. The proper method of administering this antidote is first to give the officinal solution of the sesquichloride of iron, and follow it in fifteen minutes by the magnesic oxide in the proportion of four grammes of the latter to one hundred cub. cent. of the former.

In one hour after the administration of the antidote a cathartic should be given. The ingestion of acid drinks and lemonades should be avoided during the entire treatment, since the compounds formed by the union of the arsenic with the antidote are soluble in acids.

Chronic Lead Poisoning.—Dr. Gilbert, of Havre, reports two cases of chronic lead poisoning of very obscure origin. One was that of a newspaper editor, who was in the habit of using daily large numbers of red wafers for sticking together newspaper clippings. These wafers were colored with red lead, and were always moistened by being introduced into the mouth. The symptoms consisted chiefly of anæmia and an obstinate dyspepsia. The attacks of colic were very rare, and there was no constipation.

The second case was that of a professor in the University, and was finally traced to the ingestion of large numbers of *cachous*, which upon analysis proved to contain in each box 0.20 gramme of lead, which was a constituent of the foil surrounding each *cachou*. The amount eaten exceeded a box in two days. Lead was detected in the urine after treatment with iodide of potassium, although none could be found before the iodide was given. This patient never had constipation or colic, but the anæmia was very marked, and there was a slight blue line on the gums.

The following analyses of so-called tin-foil show how totally unfit many of the specimens are as a wrapping material for articles of food. The specimens analyzed were taken at random:—

Tin.....	96.53	85.24	71.20	58.42	40.62	0.00	1.90
Lead.....	3.10	14.06	28.09	41.01	58.00	98.64	95.41
Copper.....	0.21	0.60	0.61	0.36	1.31	1.24	2.72
Total.....	99.84	99.90	99.90	99.79	99.93	99.88	100.03

Hydrocyanic Acid.—Dr. L. Volz reports a unique case of prussic acid poisoning, in which ferro-cyanide of potassium was ingested, and the hydrocyanic acid generated in the stomach by swallowing immediately afterward a mixture of hydrochloric and nitric acids. The post-mortem appearances were chiefly those of poisoning by the mineral acids, but death was evidently caused by the hydrocyanic acid developed by the decomposition of the ferro-cyanide of potassium. The contents of the stomach were found upon analysis to contain hydrochloric and nitric acids, Prussian blue, cyanide of iron, a small amount of undecomposed ferro-cyanide of potassium, and free hydrocyanic acid, which was detected by distilling the contents after neutralizing them with bicarbonate of potassium, and setting free and volatilizing the hydrocyanic acid by passing a current of carbonic anhydride through the mixture in the retort.

But one other case of poisoning of this nature is reported. In this case the ferro-cyanide of potassium, which was first taken, was decomposed by a solution of tartaric acid. Death took place with all of the symptoms of prussic acid poisoning.

Strychnia.—Experiments were made by A. Huguet to disprove a statement made by Dr. Schuler in a legal case, that "six to fifteen centigrammes of pure strychnia or of one of its salts placed upon the internal angle of the eye of a man would be sufficient to destroy life rapidly and without leaving any traces; the discovery of the poison, which could only be detected in the lachrymal canals and mucous membrane about the eye, would be very difficult, especially as the criminal or even the victim himself could remove it." Ten centigrammes of the sulphate of strychnia introduced into the eye of a dog weighing twenty-four kilogrammes proved fatal,

although about one-half of the substance was lost. By Dragendorff's process strychnia was detected very plainly in the eye and surrounding tissues, and a trace of strychnia in a mixture of the stomach, liver, and blood. No strychnia could be detected in the brain and cerebellum.

Belladonna.—A blue fluorescent coloring matter has been discovered in all parts of the belladonna by R. Fassbender. This can be detected in very dilute solutions, and has been found in all of the extracts of belladonna which the author has examined. It can be isolated by crushing with a little water two of the unripe berries, evaporating the filtrate to dryness, extracting the residue with alcohol, and digesting this extract, which reddens litmus paper strongly, with animal charcoal, which retains all of the coloring matter. The charcoal is then treated with alcohol to which two drops of ammonia water have been added, filtered, and washed two or three times with alcohol. The fluid thus obtained is strongly fluorescent, and even when diluted with two hundred cub. cent. of alcohol has a distinct blue color. The residue left after evaporating this solution to dryness gives a blue solution if treated with ammonia water. The recognition of this substance may prove of great value in the detection of poisoning by belladonna.

Crystallized Bromide of Conia.—Mourrut has succeeded in producing crystals of this substance, and in obtaining a preparation of conia which has a constant composition, and from which solutions having a certain strength and a definite physiological action may be made.

The bromide of conia is prepared by treating conia with a dilute solution of hydrobromic acid until the mixture has a neutral reaction, and crystallizing. The crystals can be obtained from the colored as well as the colorless conia by repeated recrystallization, but with a considerable loss of material. Bromide of conia is a tolerably stable compound, but should be kept in a tightly-stoppered bottle, and in a dark place. It crystallizes in the form of prismatic needles, which are soluble in water and alcohol, slightly soluble in ether and chloroform, non-deliquescent, odorless, and with but little taste.

A Case of Belladonna Poisoning—Recovery.

Dr. J. D. WHITLEY, of Oakland, Illinois, sends the report of this case to the Chicago *Medical Journal and Examiner*, September, 1877:—

August 3d. Was called about 10.30 A.M. to see Cerda R., aged 3½ years. When I arrived the child was apparently sleeping soundly. Pulse, 130; respirations, 20 per minute; the entire surface of the body was covered with a very bright scarlatinal eruption, with occasionally livid spots of variable size. Upon lifting the eyelids, found the pupils dilated to such an extent that only a very small circle of the irides remained visible.

The mother stated that the child had a chill on the day previous, and that she had given a large teaspoonful of quinine mixture (quinine sulph. ʒj, syrup glycyrrhiz. ℥j), at 8 o'clock, to prevent the recurrence of the chill. In a few minutes after taking the dose the child had vomited slightly, and in less than an hour after she commenced having spasms, which continued, alternated with periods of repose, until my arrival, two hours and a half later.

Upon examining the supposed quinine mixture, it proved to be fluid extract of belladonna, which the mother had used locally, some time prior to this, for the purpose of suppressing a threatened mammary abscess.

The diagnosis being settled, I gave the patient a teaspoonful of ground mustard,

mixed with water, repeating the dose in a few minutes, but the imperfect deglutition rendered the administration very difficult. It was followed, however, in a short time by rather imperfect emesis. I then determined to test the antidotal powers of opium.

At 11 A.M. injected ½ grain of acet. morph. hypodermically in right arm, and gave a teaspoonful of strong solution of tannic acid by the mouth every half hour. Patient slept soundly directly after the injection, except frequent slight subsultus, and the slightest touch on the finger tips would produce profound digital flexion. Pulse 126, during sleep; 2 P.M., patient aroused voluntarily; talks a great deal in a thick, gruff voice. Rash entirely disappeared. Right pupil slightly contracted; left very large; very restless; injected ½ grain acet. morph. in left arm; continued solution of tannin.

4 P.M. Very restless; wants to walk about, but is unable to stand alone, becoming delirious, laughing wildly one moment, screaming and clutching with fright the next. Muscular incoördination in reaching for anything. Will overreach or fall short of the object; has lost all idea of distance; power of articulation destroyed. Tongue appears greatly swollen.

Rash has appeared again over the entire body, more marked at flexion of joints. Pupils intensely dilated; morbid sensitiveness to sounds and objects; is terribly frightened at objects lying about. Afraid of visitors, shrinking from them and screaming wildly; insatiable thirst; motions and calls for water incessantly, but swallows it with difficulty.

6 P.M. No better; injected ½ grain acet. morph. in right arm.

8 P.M. Fully under influence of last injection; resting, except occasional tossing and rolling about; subsultus tendinum when quiet; pulse, 130.

10 P.M. Aroused patient; still wild and grasping at everything. Pupils slightly contracted, with diverging strabismus; pulse, 128; respirations very slow; allowed patient to sleep again.

At midnight patient sleeping soundly; pulse, 126; respirations quite slow, with crowing sound on inspiration; becomes very rigid when aroused; relaxed when sleeping; rash disappeared again; given solution of tannin every hour; roused the patient occasionally until 2 A.M., when she awoke; talks much; articulation more distinct; calls constantly for water; gave a teaspoonful each of olei olivæ and olei ricini every hour; discontinued solution of tannin and injected ½ grain acet. morph. in left arm.

4 A.M. Roused by and passed a large quantity of dark-colored urine; pulse [illegible] profuse perspiration with warm surface; remained about the same until 8 A.M. when the bowels operated freely.

10 A.M. Patient roused up much improved; disposed to play; pupils almost normal, dilating readily in the dark, contracting tardily when exposed to light; voice nearly normal; pulse, 96.

12 M. Twenty-eight hours after taking the belladonna all traces of it have disappeared: pulse, 90; pupil normal but dilating rapidly; everything appears to indicate a rapid and permanent recovery.

A Case of Poisoning from Oil of Tansy.

Dr. A. E. SPAULDING, of Winnebago, Illinois, reports, in the [illegible] Medical Times, July 7th, 1877, a case of this kind with recovery. He says:

On Friday, May 12th, at 12 o'clock M., I was summoned in haste [illegible] aged twenty-one, who, it was stated, was "having a fit." I found [illegible]

floor, conscious, and vomiting. While inquiring of those present the character of the convulsion, the patient uttered a loud scream, powerful tonic contraction of the flexor muscles came on, the forearms were drawn forcibly against the thorax, face deeply congested and livid, foamy saliva was ejected from the mouth, eyes were wide open, and remained so during the convulsion, which lasted from one to two minutes. When the convulsion ceased, the patient vomited, the contents of the stomach emitting a peculiar odor. Upon inquiry, I learned from the husband that she had taken a teaspoonful of oil of tansy at 9 o'clock A. M., for the purpose of bringing on her menses. I immediately administered an emetic of sulph. copper, which produced free vomiting. The patient complained of headache, but had no more convulsions. I have thought this case deserving of report, on account of the extent to which tansy is used as a household remedy in suppressed menstruation, and that the physician may be aware of the symptoms produced by an overdose. A fatal case of poisoning from one drachm of oil of tansy is recorded in the *American Journal of the Medical Sciences*, xvi, 256, death being preceded by coma and violent convulsions.

Poisoning by Nitrate of Potash.

Mr. RICHARD WOOD, L.R.C.P.ED., of Bromsgrove, gives this case in the *British Medical Journal*, October 13, 1877:—

On August 15th, about noon, I was called in a great hurry to see a woman who had intended to take two ounces of salts, but who, by mistake, had taken something that only looked like sulphate of magnesia. While swallowing she perceived the taste to be different from what it should be, but could not tell what she had swallowed. She complained of great burning pain in the stomach, and in about five minutes vomited some glazy fluid on the floor of the room. There was no time to be lost. I at once gave her a drachm and a half of ipecacuanha, followed by one ounce of chalk mixed with water. After this I tried to pick up some of the vomit with a spoon; failing in this I wiped it up in my pocket handkerchief to take home. The cup which had contained the draught was quite empty and clean. Upon rubbing my finger, however, round the bottom and applying it to my tongue, it tasted saltish, like nitre, and not like acid. All this time the poor woman complained pitifully of the pain in her stomach, and spoke of it as a burning pain. To help vomiting, some oil was given in milk, and immediately she brought up a quantity of brownish fluid. The pain was not relieved; she continued groaning with it, but had no convulsions. Some slight shivering and tremulous motions of the hands occurred, with an unsteady attempt at walking. The pulse was quick and feeble. The bowels acted twice within the first two or three hours. She vomited no blood; the retching continued off and on most of the night, and she could obtain no sleep or cessation from pain.

On the 16th (the next day) I ordered a mixture containing opium to allay the pain, and applied poultices. I was now told that a quarter of a pound of saltpetre had been bought some time previously for curing bacon, and it was thought that the woman might have taken what was left of it. Acting upon this suggestion, I tested for nitre in the liquid I squeezed out of my pocket handkerchief. I evaporated a drop on a glass slide, and found under the microscope rhombic prisms and acicular crystals. Some paper dipped in another portion of the fluid, dried and burned, deflagrated. I may here mention that chlorate of potash paper also deflagrated; but, after being burned, the ash or the charred parts of the chlorate is gray, whilst

that of the nitre is black. In a watch glass I evaporated a little more of the fluid, added two or three drops of sulphuric acid to the residue with some copper filings; upon slightly heating this mixture reddish fumes were given off, which reddened litmus paper and blackened starched paper previously moistened with solution of iodide of potassium. There was no longer any doubt as to the salt taken by my patient.

I now come to another stage of the case. Knowing what the poison was, I ought to know what the treatment should be, but I did not. In several books which I have I can find no treatment.

On the 17th, after another sleepless night, the woman showed signs of great and serious prostration. She herself felt her end approaching. She remained quite conscious, and could point out the exact place where all the mischief was. The pain was still a burning pain, a weight that did not leave her for a minute. She could take no beef tea; the sight of it made her sick; she took nothing but cold milk and water. Her bowels had not acted yesterday nor to-day. An enema of warm gruel, with a quarter of a pint of castor oil, was given, with the effect of producing a satisfactory motion. She was able to pass urine freely all the time; the urine and evacuations were free from blood. I regretted not having used the stomach-pump. I took it with me on my first visit, but was unwilling to use it before ascertaining what had really been taken. Toward the evening of this day she fancied she was relieved by the medicine; but the relief must have been only slight, for she spoke with hesitation, and was very depressed in spirits.

August 18th. On my visiting her this morning I was surprised to be told she had slept some hours, and had taken some tea for breakfast. She looked up and made an attempt at a smile. She spoke more hopefully. The pain was less intense, and had even on one occasion left her for a few minutes. She asked to discontinue the poultices. Her pulse was better; her tongue, which had been very dry, was moist, and from this day she gradually rallied.

Opium Poisoning.

Dr. J. F. Fitzsimmons, of Bucyrus, Ohio, reports in the Toledo *Medical and Surgical Journal*, May, 1877, the following case:—

January 9th, about 9 o'clock P.M., I was hastily summoned to see a child about two years old, that had swallowed a quantity of laudanum. I arrived at the house perhaps twenty-five minutes afterward. The child presented as yet no clearly marked symptoms of opium poisoning. The child had seized a vial containing something over half an ounce, which had been carelessly left near the edge of the table. The mother had just given the child a few drops, for diarrhœa and severe pains in the bowels.

The evidence was clear that the child had swallowed nearly two drachms of the officinal tincture, and it occurred to me that fatal narcotism would result if the stomach was not quickly emptied. The mother, or some of the friends, had given the child a quantity of soda, and also some mustard and water; the child had also eaten a good deal at supper, some three hours previous, and had a small piece of apple pie in his hand when I arrived.

About twenty grains of ipecac were dissolved in warm water, or rather, well mixed, half of which was administered, followed in a few minutes with a quantity of warm water, and in ten minutes more ipecac was again given; warm water and mustard were administered a few minutes afterward. We now had recourse to a feather, the

use of which provoked emesis; only a small quantity of food and a little fluid were vomited.

I now gave more ipecac and warm water, and soon after resumed the vigorous use of the feather. I was much annoyed to find that the stomach would not respond; at our second attempt perhaps not more than a few mouthfuls were ejected. The child was fast sinking into a stupor; I had but little faith in emetics, and had no idea I could procure a stomach pump in time to render any service. At this stage it became a matter of absolute importance to keep the child from sinking into a fatal stupor.

We now commenced to dash cold water on its head and face, jolting and tossing it about at a lively rate. I also prepared a quantity of bromide of potash, about half a drachm, and a small quantity of belladonna, about ten drops of fluid extract (all I had), to a half cup of water, and gave a teaspoonful every hour, and also a strong infusion of coffee, which we gave unsparingly. I attended to the administration of this latter remedy myself, pouring one tablespoonful after another down the child's throat.

The pupils had by this time contracted to about the size of a pin's head, extreme languor and drowsiness supervened, which threatened a deep and perhaps fatal sleep. Stertorous respiration, dark suffusion of the countenance, laboring pulse, and great insensibility to external impressions, indicated a probably fatal result. The child could not support its head, or take a step without assistance. A faint cry or whine would escape the child when extreme measures were employed to rouse it. It seemed sometimes as if it were useless to prolong our efforts; it seemed that the deadly stupor would, in spite of our best efforts, overcome the child.

The respiration now became irregular, the pulse slow and laboring, and deglutition extremely difficult. We kept an attendant, for perhaps two hours, walking the child about the room, and every ten or twenty minutes I would administer a few teaspoonfuls of coffee. This treatment was kept up for about four hours, varying it once in a while with the application of aqua ammonia to the nostrils, and twice a small quantity of ammonia was given in a little milk; a hot foot bath was also employed.

About 1 o'clock A.M. I noticed symptoms of nausea, and slight dilatation of the pupils, and other evidences of irregular nervous action, slight irritability of temper whenever disturbed, cold extremities, pallor of countenance, and a more feeble and frequent pulse. I now ordered teaspoonful doses of whisky and dry flannel underclothing. I thought at this stage the child might be permitted to rest, with a moderate use of the stimulants, and directed a teaspoonful of the mixture of bromide of potassium and belladonna every two hours.

I called again at half-past 6 A.M., and found the child in a nervous sleep, but otherwise decidedly improved. I ordered light nourishment and rest. In about two days it made a good recovery.

I think I made a mistake in not using a more active emetic. I ought to have used tartar emetic or sulphate of zinc.

MATERIA MEDICA AND THERAPEUTICS.

I. PHARMACOLOGY.

A Convenient Mode of Dispensing Ointments.

Dr. ARTHUR VAN HARLINGEN, Chief of the Skin Clinic of the University of Pennsylvania, calls attention, in the *Medical Times*, of this city, April 14th, 1877, to a new and more advantageous mode of dispensing ointments. He says:—

In this city ointments are usually put up by the pharmacist in flat boxes of wood, porcelain, or glass, or in some cases in earthenware crocks, or in gallipots. The objection to this method of dispensing such preparations is that a large surface is necessarily exposed to the air, and decomposition quickly sets in, resulting in rancidity. Thus, an ointment intended to be applied to an inflamed surface, where the most soothing qualities are required, becomes rancid in a few days, the skin is irritated, and an effect quite opposite to that intended is the result. It is, I think, often the case that in this way many valuable unguents fall into undeserved disrepute. When kept in a cool place, most ointments, even when put up in the customary manner, will preserve their freshness for a considerable period. There are some, however, and notably the ung. diachyli of Hebra, perhaps the most valuable application of its kind in use, which decompose with great facility, and which in a few days become utterly changed as regards their therapeutic effect, unless preserved with the most scrupulous care. The ung. diachyli has long been a favorite application with me, and yet I have been until recently almost unable to employ it excepting in cases where the prescription could be frequently renewed and freshly made up each time, on account of the quality of rapid decomposition just mentioned.

I have of late, however, been enabled to prescribe this, as well as other easily decomposable ointments and those containing volatile substances, with perfect confidence, by employing a receptacle which will absolutely exclude the air at all times and yet allow free egress to the ointment when required.

The receptacle to which I allude is a soft metal tube, such as is used by painters for containing moist colors. This can be supplied of any convenient size. It is cylindrical in shape, open at one end and closed at the other by a top of stiffer metal, having a neck like that of a bottle, around which a thread has been cut: over this fits a cap, which can be screwed down so as to exclude the air perfectly. It is even fitted with a little bit of cork at the top, like the lid of a traveler's inkstand. The ointment in a melted condition is poured in at the open end of the tube, and, when filled, this end is pinched together and folded over, the soft metal permitting it to be perfectly sealed by this means. When needed for use, the cap is unscrewed, and by rolling up the flattened end of the tube a sufficient quantity of ointment may be forced out in the form of a plug, taken off with the finger, and applied as required. The operation completed, the cap is once more screwed on, and

the ointment laid aside in its air-tight case until again needed. Where the ointment cannot be melted, it may be placed in the tube with the aid of a spatula.

I am indebted to an article in the *Medical Times* of May 30, 1874, for the suggestion of this plan for dispensing ointments, where it is credited to M. Jacques de May, a Parisian apothecary. Tubes of the kind described are to be found in the shops, containing rose-ointment and shaving-paste, but empty tubes of a convenient size have not until lately been attainable. Recently, however, Mr. Joseph P. Remington, the well-known pharmacist, of this city, has procured them for me, and now keeps them on hand, of various capacity, from two drachms upward; and I have employed them largely in dispensary and private practice with great satisfaction.

Boracic Acid Ointment.

Mr. A. W. Bateman writes to the *British Medical Journal*, September 22:—

I should like to call attention to the value of Professor Lister's boracic acid ointment as a dressing for wounds in general. During the last two years, I have been in the habit of using it, and have concluded that it is preferable to either dry lint or other dry applications, and also to water dressing. For wounds, when hemorrhage has been stopped or can be caused to cease by the application of light pressure, it is very useful; for, owing to the smooth, waxy consistency of the ointment, the dressing does not at all adhere to the edges of the wound, nor to the clot between its margin. The dressing can, therefore, be removed and replaced as often as is advisable for the examination of the wound, without disturbing the healing process. Any discharge that forms can also easily escape between the layers of ointment and the skin around the wound. The ointment is thus preferable to dry lint, except in those cases where there is a great amount of oozing, when the dry lint and blood may act beneficially by forming an artificial scab. Water dressing may be regarded as an inefficient mode of poulticing, and wounds that do not require poulticing can be better treated with the ointment than with the water dressing; for prolonged water dressing generally irritates the skin around the wound, which becomes sodden and sore, while the skin remains comparatively healthy under the ointment. The smooth surface of the ointment is less liable to destroy by friction or otherwise damage the surface of the granulations than is the lint. The ointment never sticks to the surface of the wound, and no pain or injury is caused on removal of the dressing. Another great advantage is that, owing to the antiseptic quality of the boracic acid, the dressing need only be removed every second or third day, unless the discharge be profuse. Thus time is saved with hospital patients. I have noticed that small lacerated wounds—for example, of the fingers—will keep perfectly sweet for twenty-four hours under the ointment, even in tropical climates, and here they keep quite sweet for two days; whereas water dressing generally requires to be reapplied every twenty-four hours. In applying the ointment, the dressing should extend far beyond the edges of the wound on to the surface of the surrounding skin, so as to interpose a considerable antiseptic interval between the margin of the wound and the limits of the dressing. This is the more important in proportion to the amount of discharge.

II. GENERAL AND SPECIAL THERAPEUTICS

On Anhidrotics.

In a paper in the Dublin *Journal of Medical Science*, April, 1877, Dr. T. Hay says :—

Perspiration may be of the essence of the disease, as in ague and rheumatic and requiring only indirect treatment as a symptom of secondary importance; may be incidental, demanding by its excess, and by its unfavorable influence o issue of the principal disease, direct or even exclusive treatment. Of anhidroti employed in the latter class of cases only, I propose to treat in these brief not

Anhidrotics are most frequently demanded in the advanced stages of pulm phthisis—those, namely, of softening and excavation. In these cases the per tion alternates with diarrhœa, and is sometimes so profuse as to saturate the dress and bedding, leaving the patient in a wretched state of slop and chill, an disposing to fresh cold with all its evil consequences. It usually occurs sleep and toward morning, or after a paroxysm of coughing. In the former is most effectually controlled by five grains of Dover's powder, given once or in the course of the night; and in the latter, namely, where perspiration is excessive coughing, the inhalation of ♏ 10 to 20 of chloroform, or a full dose each) of chlorodyne and liquor of morphia, given during the fit of coughing best remedy.

I have occasionally given oxide of zinc in combination with Dover's powd and a half grains of each), but the latter given alone is more efficacious, and wise useful as a corrective of or a prophylactic against diarrhœa.

Tepid sponging of the face, neck, chest, and hands with toilet vinegar an in equal proportions at bedtime is likewise useful as an inhibient of perspirat is very agreeable to the patient. The drinks should be cold or tepid; ice occasionally sucked, and the night dress should be put on as warm as it can b

I have used belladonna in a few cases, one-half a grain of the extract giv in the course of the night, or a full dose (♏ 30) of the tincture at bedtime. in some degree checked the night sweats of phthisis, but failed to arrest the as an anhidrotic in this disease, it is inferior to Dover's powder.

I have seen profuse and obstinate sweating in the convalescence of typhoid; in the case of a young man, aged twenty-two, it set in on the th day of illness, and resisted for a week all medical treatment; six shirts rated every night. Tincture of belladonna and dilute phosphoric acid separately and conjointly in ♏ 30 doses; sulphuric and hydrochloric acid in ten-grain doses; Dover's powder; oxide and sulphate of zinc, without last I induced the patient, much against his will, to get out of bed and for several hours daily; by this means perspiration was promptly arrested, and a change to the country completed recovery. The bowels convalescence, rather constipated.

For the sweating of acute miliary tuberculosis, opium is, I think, th but any medicine used must be occasionally suspended, else it will rule which equally applies to the sweating of the more advanced st ized disease.

For the sweating of the hands, feet, and axillæ, which

otherwise in good health, Dr. Ringer recommends the liniment of belladonna, rubbed occasionally over the parts affected. I have not tried this, but in the cases just mentioned frequent washing and sponging with the "liquor" obtained from the tan-yards, which is a strong cold infusion of oak bark, I have found very efficacious.

Perspiration may be checked directly by means of topical astringents or by cold, but these means are of only temporary efficacy, and induce active reaction of the sweat glands.

Inhibition of blood supply to these glands through the vaso-motor nerve-system, as exemplified in Bernard's experiments of galvanizing the sympathetic nerve of the sub-maxillary gland, constitutes the scientific plan of treating general hidrosis. The medicinal agents by which this may be accomplished are anhidrotics in the true sense of the word.

It is a question of much interest whether, following the clue afforded by Bernard, physicians may not find in electricity an agent still more potent than medicine in the treatment of hidrosis. I take it that cold liquids introduced into the stomach, being rapidly absorbed, act as anhidrotics by cooling the blood, whilst external heat acts as a peripheral irritant of the vaso-motor centre, whence, by inhibition of the cutaneous vessels, the functional activity of the sweat glands is restrained or suspended. I hope to publish very soon a summary of cases of hidrosis treated by means of these several agents.

Venesection as a Therapeutic Agent.

In an article in the Birmingham *Medical Review*, March, 1877, Dr. WARNER discusses the position of bleeding as a therapeutic agent. He would use it chiefly as a means of relieving tension, by withdrawing blood from certain portions of the circulatory system, viz., the systemic veins, the right heart, the pulmonary artery and its branches, the bronchial veins and capillaries, and indirectly the left heart by means of the systemic capillaries. Venesection may thus be called for in cases where obstruction of the pulmonary circulation with collateral œdema on one side of the chest arises from disease in the other, as, for instance, in pleural effusion, pneumonia, pneumothorax, and deformities of the chest; it may also be practiced with benefit when the circulation through the lungs is impeded by emphysema, bronchitis, laryngeal obstruction, or disease of the left side of the heart. He recommends it as a palliative in croup and pleuritic effusion, and cases are given illustrating its employment in heart-disease, pneumonia, hæmoptysis, puerperal convulsions, etc. Dr. Warner regards venesection as useless in inflammation for antiphlogistic purposes, unless in the earliest stages, when it may arrest exudation.

Incompatibility as Applied to Medicine.

FRANCIS MOINET, M.D., F.R.C.P.E., writes in the *Pharmaceutical Journal*, February, 1877:—

No doubt all are aware what the word means in common parlance, viz., opposed to, or incapable of combined or harmonious action. In chemistry the meaning is somewhat similar when the term is applied to two or more substances which are not capable of being united in solution without liability to decomposition or other chemical change, very often with the result that a precipitate is thrown down.

While, then, this is what is generally meant by incompatibility in every-day language and as used in chemistry, I wish to have it remembered that it is very often wrong when applied to medicine. We must look beyond the bottle, and consider if

the mixture is incompatible with the known action of the ingredients; and if the mixture is not incompatible with these, it is not incompatible at all in a therapeutical sense, which is the only incompatibility that we have to consider.

The reason why chemical does not necessarily imply therapeutical incompatibility is, that we must take into account the solvent power of the gastric and other intestinal juices acting under the influence of vital force. So that, while in chemistry the term has a definite meaning about which there cannot reasonably be a difference of opinion, when applied to medicine the case is different, as it is not then simply a question of chemical ethics; it is not only the condition as to the solubility or insolubility of a medicine that has to be considered, but the effect on its activity, that is, its action on the animal economy. Hence the reason why the chemical definition is too limited. It may be, and is correct in some instances, that the condition interferes with the action of the prescription, but not in all, and even when it does, it is, at it were, only by chance, as the definition does not imply it, nor does it logically follow. Neither can we expect it, as the definition was made without any reference to its application to medicinal compounds as affecting their activity. This is the reason why at the present day, in prescription writing, chemical incompatibility is so frequently disregarded, and must be; and if we wish for examples we have them in plenty in the Pharmacopœia itself. So that some prescriptions and preparations are framed designedly to take advantage of chemical incompatibility for the advantage of the patients. Hence, before condemning a mixture whose components are chemically incompatible, we must ask ourselves the following questions:—

1. Whether the new product, although insoluble in the phial, may not be soluble in the gastric juices?

2. Whether, as a result of a change, the new compound or compounds be equally active as a medicine?

3. If, in a case of decomposition, the products of exchange are equal in energy to the original substances?

As a general rule, however, we must carefully avoid the combination of substances which may produce unknown or ill-defined compounds, or compounds different from those intended, or whose action is different; hence a knowledge of their composition and action must in every case direct us.

But from what I have said it must not for a moment be inferred that I wish to underrate the importance of chemical incompatibility. In point of fact, that we should neither underrate nor overrate, but justly appreciate its significance; and a moderate amount of chemical knowledge is quite sufficient to enable us to do so, and prevent us falling into either extreme of avoiding all chemical incompatibles, or disregarding all; because in the former case we should greatly limit our resources in the treatment of disease, while in the latter we might be giving useless or even dangerous compounds.

And while older practitioners attached too much importance to this form of incompatibility, the new school is just a little inclined to rush into the other extreme. This, I need hardly repeat, is an error in the other direction, and to be most carefully avoided, as it is one fraught with danger to the patient.

Again, in other cases, although the effects may not be dangerous, the patient may be taking some compound different from what was intended, or an inert preparation, and so if it does no bodily injury, at least it is wasting time and money, which are important aids to recovery, and at the same time exposing the ignorance of the physician.

And the only thing to prevent us going to either extreme is a knowledge of the proper meaning of the term, based upon a knowledge of those branches of study, viz., chemistry, materia medica, and therapeutics, which alone form the proper groundwork for the rational prescribing or dispensing of medicines.

The next question is, then, Can the action of remedies be interfered with when in combination in any other way than by what is due to opposing chemical properties? If not, chemical incompatibility, when it defeats the purpose of a prescription, would be the only form.

This, however, is not the case. So that we must, to understand the terms properly, see what a definition ought to embrace if it is a complete one and logically correct.

To do this we must look beyond the prescription, and see for what purposes it has been written—that is, its action—and have two questions to answer instead of one viz., If it is an instance of chemical incompatibility, is it also one of medicinal, or as it is sometimes called, physiological or therapeutical incompatibility? If not, it cannot be fairly condemned, although in some cases, without any sacrifice of its utility, the chemical incompatibility might easily have been avoided.

But although the ingredients of the mixture may not be chemically incompatible yet their physical properties may be such as to interfere or defeat the intended operation, and that without any chemical change taking place. So that not only the chemical but also the physical properties of certain substances may be a bar to their action. For these reasons a prescription or preparation may be an example of a form of incompatibility which may be termed pharmaceutical in contradistinction to chemical, and be due to the physical properties of the substances used.

But even supposing a prescription complies with the rules of chemical and pharmaceutical compatibility, there is another question which occasionally must be considered, owing to the advance of our knowledge of the action of medicines, viz their antagonistic action, which is so well marked, for instance, in the case of the action of atropine, the active principle of belladonna, and physostigmine, the active principle of Calabar bean.

And what is seen to take place in regard to their actions on the pupil takes place to a certain extent in regard to their action on other parts of the nervous system.

This antagonistic action is not due, remember, to any chemical change, but to their action on certain portions of the nervous system being of an opposite nature, and so neutralizing each other; that is, what are termed the dynamical or vital properties of remedies, as distinct from their chemical or physical, are incompatible.

This, then, is an incompatibility of a third kind, which, although not so frequently met with as the others, must receive its due share of attention if we are to look at the subject in its completeness.

So that all rules, apparently, must have exceptions. But looking at the subject as we have done, thus briefly, it will be understood that incompatibility may be of three kinds when applied to medicines, viz.:—

1. Pharmaceutical.
2. Chemical.
3. Physiological, therapeutical or medicinal.

The first by reason of their physical properties, the second by reason of their chemical properties, and the third by reason of their dynamical or vital properties interfering with the action by which a prescription or preparation might be curative or salutary, its activity being lessened, increased, perverted, or entirely annulled.

we may put it another way, namely, that the action of a prescription may be fered with by pharmaceutical, chemical, or physiological incompatibility, all of n propositions are included in the following definition:—

t suitable to be prescribed together on account of their activity being interfered by their physical, chemical, or dynamical properties.

On the Action and Uses of Stimulants.

ynopsis of a paper read before the Alameda County Medical Association, 2d, 1877. by Dr. J. F. BURDICK, appears in the *Pacific Medical Journal*, st 1, 1877:—

e idea suggested by the term stimulants should not be confined to alcoholic ages and a few other agents, the abuse of which is the cause of so much crime nisery. Some of these, as tobacco and hydrate of choral, are more properly ives. Stimulants increase vital activity, not nervous force. Strength or force always indicated by the amount of activity. The heart often beats actively apidly when weak.

rength is best exerted when most regular. Stimulants do not produce regular n, nor replace lost power. They act rapidly; their effects are transient; they uce excitement, or, when their action is carried too far, they produce sedation; light blow may excite a man, while a heavier one will knock him down.

ney are indicated in depression, which is an acute prostration, similar to an t of motion in a clock from some sudden and powerful cause. The power is not it only requires a jog to the pendulum.

exhaustion, which is a chronic prostration, the clock has run down. This ires tonics, that is, wind up the clock. In oppression there is an impediment, a pebble in the cogs. The power is there, but the pebble prevents motion. To stimulants before removing the pebble would do harm.

imulants are often used as indirect sedatives, as when we have great excita- y, due to a diminution of the powers of the system. Some claim that stimulation lways a relaxation, that increased power from excitement is always wasted er. The law of stimulation is, rising toward or to par is not followed by de- sion; rising above par is followed by depression.

timulants may be classified as (1) general—those that affect the whole system, : heat and electricity; and (2) special—those that affect special organs.

Heat is used as a general stimulant in collapse of fevers and other diseases, and for revulsion or derivation.

The stimulant action of electricity is seen in the contractions it produces, and action is so prominent that to a large extent its tonic action, which is a conse- ence of these contractions, has been overlooked. As a stimulant it is used in hyxia and narcotic poisoning, etc.

Arterial stimulants, capsicum, oil of turpentine and carbonate of ammonia, etc., remedies that act specially on the organic or sympathetic system of nerves, with- t any special tendency to act on the cerebro-spinal system. They produce a feel- g of warmth from their action on mucous membranes, and on the vaso-motor rves which control the circulation. They are indicated in debility, where it is cessary to support the powers of life, and at the same time not desirable to act rectly on the cerebro-spinal nervous system.

Nervous stimulants, as assafœtida and valerian, etc., are remedies that equalize ervous forces by exciting the whole system equally. They are often called anti-

spasmodics, which term is inappropriate, as it indicates too much. Spasm may be due to a variety of causes. It may arise from anæmia or from hyperæmia, from exhaustion or from inflammatory action. Nerve stimulants might be good in hysterical, but would not control puerperal, convulsions.

The human system has been compared to a vehicle drawn by many steeds. When controlled by a driver, *i. e.*, the nervous system, all work harmoniously. But when the driver is weak, the steeds become confused and unmanageable.

Many remedies besides medicines may be classed as nerve stimulants. The influence of the emotions, imagination, hope, love, joy, fear, and of medical faith, is well known, and may account for much that is ascribed to bread pills and infinitesimals. Remedial effects are also produced by blows, exclamations, flashes of light, blisters, the cold douche, sprinkling, and the charms of music, etc.

Cerebral stimulants are remedies that first exalt, then derange, and finally overwhelm the powers of the mind. Of this class are alcohol, ether, opium, belladonna, hyoscyamus, stramonium, etc. Some are inebriants, as alcohol; some soporifics, that produce sleep, as opium; and some are deliriants, that produce delirium, as belladonna. In small doses they all excite and increase mental activity; in larger doses, inebriate, bewilder and impair. Soporifics stupefy and quiet, deliriants excite and derange the powers of the mind. They are used as nerve stimulants to support the powers of life, to relieve pain and spasm by obtunding sensibility, and to produce sleep.

Spinal stimulants excite the functions of the spinal cord and the medulla oblongata, increase the amount of blood in the cord by dilating its blood vessels increase sensation, and then motion, over the whole length of the spinal cord. Of this class we have practically only one, the alkaloid strychnia. Besides its general action as a spinal stimulant, it is largely used as a tonic, both in general and local debility.

Experiments on the Physiological Effects of Coca.

Dr. E. B. SHUTTLEWORTH says, in the *Canadian Pharmaceutical Journal*, August 1877:—

It will not be necessary to enter into any account of the effects of coca as observed by residents and travelers in South America. Detailed statements are to be met with in many well-known books of travel, and of late have been frequently collected together and published. One of the most concise and comprehensive is that by Mr. P. L. Simmonds, which appeared some year ago in an English paper and was reproduced in the August number of this journal. It may be noticed that all authorities agree that coca is a most powerful drug, and that for ages it has proved to the native Indian tribes an incalculable blessing. At the present time in South America the annual consumption of the leaves cannot fall short of 100,000,000 pounds, a fact in itself sufficiently suggestive and conclusive.

Of the effect of coca on English-speaking people, in England and America, the evidence is not so satisfactory. Some experiments have been made and reported in which the drug has apparently fulfilled the expectations which were entertained regarding it, while, on the other hand, it has as often been condemned as useless, and perhaps inert. The statements of Sir Robert Christison, as given in his address before the Botanical Society of Edinburgh, may be taken as representing one side of the case; those of Weston, the pedestrian, the other. In both the evidence is strong but contradictory.

During the past year, and part of the present season, an opportunity has been afforded of testing the merits of coca on a somewhat extensive scale. In the spring of 1876 a number of gentlemen connected with the Toronto Lacrosse Club commenced using coca with a view to the prevention of the fatigue incident to a game in which violent bodily exertion forms so large a part. The result was so satisfactory that fifteen or sixteen players, nearly all connected with the "first twelve," used the leaves at all the important matches played during the season. These were some ten in number, and sometimes lasted for many hours. As this club held the championship of the world, and maintained it throughout, against all comers, Indians and white men, it may well be imagined that the play was of no light character, and that the games were very hardly contested. At one of these, which took place in the middle of summer, the effects of the drug were very strongly marked. The day was exceedingly hot, the thermometer marking 110° Fahrenheit in the sun. The antagonists of the club were men of sturdy build, of good physique, well trained in the game, and, in general, connected with the mechanical trades, or with out-door occupations. In the latter particular they were in strong and apparently unfavorable contrast with the players of the Toronto club, whose occupations were all of a sedentary character. However, at the close of the day, during a short interval of rest between the games, I remarked that the men of the rival club were so thoroughly exhausted that it was with the utmost difficulty they could be roused by their field again to take part in the concluding game, while the coca-chewers were as elastic and apparently as free from fatigue as at the commencement of play.

Before referring to the statements of the players themselves, I may explain that such evidence may be accepted with confidence, as emanating from gentlemen capable of forming correct conclusions. Without individualizing or making personal references, I may say that all the experimenters belong to the most respectable class of society, are educated and intelligent, and several of them occupy high professional positions.

At the commencement of every match about a drachm to a drachm and a half of the leaves was served out to each man. This was chewed in small portions during the game, the saliva being, of course, swallowed. On first taking the leaves a sensation of heat and dryness was produced in the throat. This was relieved by washing out the mouth, or gargling with water, after which the desire for water was no greater than usual. Soon after a sensible augmentation of muscular force and a general feeling of invigoration were realized, and continued to be felt throughout the game, so that fatigue was wholly, or in great part, resisted. The pulse was observed to increase in frequency, perspiration was augmented, but no mental effect was noticed, save the exhilaration of spirits always attendant on the exercise of well-strung muscles, and on the excitement of play. No disagreeable after-effects were realized. The leaves were chewed without the addition of lime or other alkaline matter.

As a summing up of the trial, extending over nearly a year and a half, I may say that the majority of the experimenters are strongly in favor of coca, some most enthusiastically so, while two or three out of the number remain indifferent, having derived no direct or apparent advantage from its use.

An athlete connected with the gymnasium in this city is in the habit of taking coca occasionally, and with great benefit. At a recent exhibition he administered to a companion a quantity of the leaves. These were chewed carelessly, and without much thought or faith as to the effect. The invigorating qualities of the dose

were such as to awaken the curiosity of the patient, who afterward declared that n only was he free from fatigue, but that during the exhibition he felt elastic an strong.

During the last seven or eight years I have often tried the effects of coca, bo on myself and other persons, and I am inclined to think that the drug may classed in the same category with tea and coffee, but that its effects are m strongly marked. This view has also been advanced by Dr. Pigeaux, of Paris, w made many experiments with fresh leaves submitted to him by the Society of Ac mation. He, however, observes that he found it less exciting to the nerves th either tea or coffee, but its action over the heart is twice that of the latter and f times that of the former. M. Colpaert says that the brain is also affected. I sons using coca for a great length of time, and in excess, are ultimately redu to a complete state of mental imbecility or idiocy.

In South America particular care is taken to procure the leaves in as fre state as possible, and many writers have ascribed the want of effect to the use of leaves. I have no doubt but coca deteriorates by age, as will also tea and m medicinal leaves; but I am certain that it does not become wholly inert, if served with care. I have now in my possession a quantity of coca which I kn to be at least eight years old, and it will still produce its characteristic effect. leaves used by the lacrosse players were as fresh as they could be obtained in N York, where the price is about two dollars a pound.

Coca may be substituted for tobacco by those who chew the latter, and the h may be thus conquered without great discomfort. I much question, howe whether such a change would be advisable, and know not which would be l injurious. I am, however, confident that coca has uses to which it may with vantage be put; and though I do not for one moment encourage or countena the continued use of the drug, and I should be very sorry to be instrumenta furthering its introduction for such a purpose, yet I think, on certain occasi as those indicated, it will undoubtedly prove useful.

Physiological Action of Gelsemia and Gelseminic Acid

Dr. Isaac Ott, of Easton, sends the following communication upon this sub to the Philadelphia *Medical Times*, March 31st, 1877:—

As is known, Prof. Wormley, of Ohio, was the first to discover these bodie the gelseminum sempervirens. Lately, Sonnenschein and Robbins have st that the acid is like æsculin. In the Philadelphia *Medical Times* I published s experiments on the action of gelsemia, which contained no gelseminic acid. S that time, Drs. Taylor, Berger, Ringer, Murral and Burdon-Sanderson have studied its action. As the literature is somewhat extensive, I will give a s account of the properties of this body as far as discovered.

Action on the Cerebrum.—As Bartholow has shown, the motor nerves and muscles are not affected; so the seat of the difficulty—that is, want of volunt movement—must be either in the sensory nerves, the sensory ganglia, the cerel ganglia, or the motor ganglia. As to sensory ganglia and cerebral, there is in n of the cases collated (thirteen) any presence of unconsciousness, except tha asphyxia; and although patients say that the skin feels blunted in sensibility, i not sufficient to prevent the motor ganglia from receiving impressions; hence trouble must be in the cerebro-spinal motor ganglia.

Action on the Spinal Cord.—When fluid extract of gelseminum was given

mia, Bartholow observed no exaggeration of reflex action. Neither did it r markedly in any of my experiments, except the first, where is noted "hyper-esia and convulsive movements." Taylor, however, noticed it frequently, and ger compared them to those of strychnia. Ringer and Murral have also con-ed it. Taylor proved that these movements were spinal in origin. I also wish ggest that one reason, perhaps, why Berger noticed the tetanus so markedly that he used an aqueous extract of the root, which would dissolve more of the than of the alkaloid. As no observer has studied the action on the spinal cord the more accurate means of the physiology of to-day, I made a few experiments Tilden's fluid extract of gelseminum. The frog was suspended by a wire, after arrangement of Prof. Bowditch, of Harvard. Then the metronome was nged to beat seconds, and the time during which the foot remained in an eous solution containing a few drops of sulphuric acid was noted. Immediately the foot was withdrawn, it was immersed in water.

Experiment 1.—*Frog. Cerebrum ablated.*

	SECONDS.	TIME. P.M.	SECONDS.
0	7	3.32	4
1 Fld. ext. gelsem., gtts. 3	–	3.54	8
5	5	4.12 3 gtts. gelsem.	—
4	3	4.17	18
3	4	4.18	24
6	4	4.19 Medulla severed	—
0	4	4.29	16
7	5	4.31 Heart-beat 24 per minute	12
1	4		

The gelsemia, like that used in the experiments of my previous paper, was free m gelseminic acid, the proof of which is given further on.

Experiment 2.—Frog. Received a grain of gelsemia subcutaneously at 4.20 P.M. P.M., hyperæsthesia, which continues; no preliminary paralysis observed. 7 P.M., peræsthesia very great; losing power over posterior extremities; croaks when ched. 8.14 P.M., losing power over the extremities; lies with them extended; kes struggling movements occasionally; twitching of muscles; makes convulsive vements, and croaks, when touched; respirations now and then. Next morning s in a paralytic state; makes convulsive movements when pinched; respirations w and then; recovers.

As is seen, after the extract of gelseminum, and the alkaloid which was proved to free from gelseminic acid, there is a rise, succeeded by a fall of reflex excitability. o discover if the centres of Setschenow were affected, either by their excitation, using a decrease of reflex activity, or their paralysis, causing an increase, the ction of this drug was studied in relation to its action on the spinal cord separated rom the medulla.

Experiment 3.—*Frog. Medulla severed.*

TIME. P.M.	SECONDS.	TIME. P.M.	SECONDS.
4.50	4	5.14	4
4.51 Fld. ext. gelsem., gtts. 3	–	5.20	4
4.53	3	5.21 Fld. ext. gelsem., gtts. 3	–
5.05	3	5.32	6
5.07	2	5.45 Heart-beat 20 per minute.	6

The spinal rise and fall of reflex excitability happens just as when Setschenow's centres were present. Consequently, this action is wholly spinal, as Taylor discovered.

Neither the hemorrhage from the division of the medulla nor the decrease of the heart-beat to twenty per minute will indirectly cause this, as Weil has shown by his very accurate experiments with digitalis.

Action on the Motor Nerves.—Bartholow proved that it had no action on the motor nerves, which I, in common with the subsequent observers, except Berger, have confirmed. Berger thinks that their irritability is reduced.

Action on the Muscles.—Bartholow proved that the muscles were not affected which is concurred in by the other observers, except Berger, who thinks that there is a reduction of irritability. It is quite true that, locally applied to the muscle, it may have such an effect, but through the circulatory medium it must be small. The flaccidity of the muscles observed after poisoning is due to the weakness of the motor ganglia, the tonus of muscles being partly dependent on the activity of reflex power.

Action on the Sensory Nerves.—Bartholow found that the sensory nerves were not affected. This has been confirmed.

Action on the Heart.—Bartholow, Ringer, Murral and Burdon-Sanderson have stated that it has no action on the heart; but I have shown by more accurate researches that in large doses it reduces the frequency of the heart-beat, by an action probably on the excito-motor ganglia. Taylor and Berger have also noticed a small reduction after large doses. While small doses or therapeutic doses may not have this effect, there is no doubt that large doses do.

Action on the Pneumogastrics.—Like the motor nerves, I have shown that there is no action on the cardio-inhibitory nerves.

Action on the Vaso-Motor Centres.—I have shown that the blood-pressure by large doses is reduced, which fact Berger, working in Heidenhain's laboratory, has confirmed. Sanderson, Ringer, and Murral have not obtained such a result because they only made one accurate kymographic observation with small doses. I also demonstrated that although the centre responded to direct irritation, yet I believed that its tonus was reduced as well as that of the heart, thus causing decreased arterial tension.

Action on the Nervus Depressor.—I have shown that its functions are not interfered with.

Action on the Respiratory Apparatus.—Bartholow found that it reduced the respiratory frequency, and I stated that the pneumogastrics did not participate in this action. Berger believes that they do; but Burdon-Sanderson has confirmed my experiments.

Action on the Temperature.—Bartholow has shown that it reduces the heat of the body, which I have confirmed. Ringer and Murral state that it does not affect the temperature.

Action on Man.—In an analysis of thirteen cases, I find that the action on man is as follows: disordered double vision, ptosis, want of coördination in the movements, disagreeable feeling in the head, great muscular relaxation, drooping of lower jaw, tongue stiff, sensation blunted, pupils dilated, respiration slow, irregular, pulse slow, feeble, surface cold and congested, unconsciousness, and death by asphyxia.

Ringer and Murral have shown that during the diplopia the images of the objects at first in the upper part of the field of vision are at different heights, although

tually in the same plane. Afterward the lower part of the field of vision is ected. They also showed that in lower animals it produces prominence of the eballs.

Bartholow stated that it paralyzed the third pair, and Ringer and Murral have nfirmed this view, stating that it affects the periphery of the nerve before the nk. Ringer and Murral think that it affects the sixth nerve before the third, the external rectus is the first muscle weakened. Locally it contracts the pupil, cording to Ringer and Murral, and they state that internally it contracts and then ates.

Artificial Respiration.—Berger has shown that artificial respiration will save imals, a fact confirmed by Ringer and Murral. Ringer and Murral believe that seminum is an antidote to strychnia; but Bartholow controverts this opinion.

Action of Gelseminic Acid.—I have made some experiments with gelseminic id, and compared its action with that of the alkaloid gelsemia. That I might be re of their absolute purity, I submitted my specimens to Dr. McIntire, formerly ofessor of Chemistry in Lafayette College. His report is as follows:—

	Gelseminic acid prepared by him.	Gelsemia, prepared by Messrs. Hance Bros. & White.
tric acid.	Dissolves with a reddish-brown coloration of the particles to a yellow liquid.	Dissolves with a greenish-bronze coloration to a yellowish-green liquid.
d to the above solution ammonium hydrate, somewhat in excess.	Changes the liquid to a deep-red solution.	Forms a light-red precipitate in a clear liquid.
lution of sodium hydrate.	Dissolves to a yellow liquid, and even on dilution shows a blue fluorescence.	No reaction.
lphuric acid.	Turns a greenish-bronze; heating dissolves it, when the heat is very gentle, to a yellow-green color, changing rapidly to a purple when the heat is higher.	Turns brown, dissolving, on the application of heat, to a chocolate color.
mmonium hydrate to this solution.	Discharges the color.	Changes it to a yellowish-green color.
tric acid added to the ammonium hydrate solution.	Changes the colorless liquid to a deep gamboge yellow.	Discharges the color.
erium oxidate and sulphuric acid.	Produces no change.	Gives a cherry-like color.

"These tests were all made on solid portions of the substance on approximately he same amount and at the same time, so that the mutual reactions could be compared. The above results show: 1. That the two substances are not identical, nor does either contain any of the other as an impurity. 2. That the reaction attributed by Dr. Wormley with the alkaloid and sulphuric acid (*Journal of Pharmacy*, xlii, p. 12) belongs to your specimen marked acid, exhibits the characteristic fluorescence, and cannot be the alkaloid."

I will add that the color of the acid was yellowish white; of the alkaloid a dirty yellow; that the acid under the microscope exhibited bundles of crystals like Fig. 1, Wormley; that when these crystals were dissolved in ether, and the ether spontaneously evaporated, they presented a fac-simile appearance to those figured by Wormley in Fig. 2.

I find that after an injection of half a grain or a grain of the substance subcutaneously in cold-blooded animals, there followed in all cases hyperæsthesia and tetanus in the course of fifteen minutes, preceded by some disposition to remain quiet, and apparent lessening of reflex excitability. The tetanus began in the posterior extremities and extended to the anterior. The respirations during this time were about twenty per minute, with considerable want of coördination in the movements. In about an hour voluntary movement returns, the anterior extremities lose their tetanic state, while the posterior extremities retain it till next morning, when there is still hyperæsthesia so great that he is elevated on the tip of his extremities, and croaks greatly when touched. On the third day the animal fully recovered.

The acid has other properties which will be more minutely detailed, either by myself or some of my students, this being only a preliminary communication.

The conclusion is that gelseminum contains two bodies; the acid always increasing and finally paralyzing reflex excitability; the alkaloid doing so in large doses, but not always; and that in tetanic properties the acid is much superior to the alkaloid.

The Physiological Action of Chromium.

In the *Journal of Anatomy and Physiology*, vol. ix, Mr. PRIESTLEY describes the effects on rabbits, guinea pigs, and frogs, of acute poisoning with neutral chromate of sodium (Na_2CrO_4) injected either under the skin or into the veins. The action may be regarded as twofold. 1. On the mucous membranes. Congestion and hemorrhagic infarctions are found in the internal coat of the stomach and small and large intestine. Their contents consist of a copious fluid, or but slightly viscid grumous material. Congestion of the kidney, with cloudiness and fatty degeneration of its epithelium, and albuminuria with casts, indicate the implication of the renal secretory apparatus. 2. On the great nervous centres. The vaso-motor centre is at first somewhat stimulated, the arterial tonus being considerably raised; after a brief period its power declines, and before death the vessels are apparently dilated to the full. The respiratory centre in mammals does not appear to be materially impaired, but in the frog the movements of respiration are the first to cease. The cardiac inhibitory centre in the cord is acted on irregularly. The motor centres of the cerebro-spinal system are manifestly acted upon. Finally, there does not appear to be any direct or special action on the heart.

Therapeutic Value of Salicylic Acid.

In a report on this subject to the Paris Academy of Medicine, in June, 1877, Professor SÉE sums up his observations as follows:—

1. The pains cease in from twelve to eighteen hours.
2. The inflammation ceases in three days.
3. The movements become free after three days.
4. The fever leaves with the pains. If it continue, it is an indication that other joints are about to become affected.
5. In cases of subacute rheumatism which have lasted many weeks, the pains and swelling have been reduced in three days.
6. Relapses may be treated in a similar manner, and are followed by like results.
7. Salicylic acid has a most favorable action on the complications of rheumatism. By shortening the course of the disease, it tends to prevent anæmia and debility. Although it does not in any way affect old-standing cardiac affections in the author's

perience, cases treated with salicylic acid have not, while under treatment, devel-ed any cardiac disease, and he says it is logical to suppose that, in cutting short e articular affections, the drug should do the same for the membranes of the heart. 8. The course of the disease is greatly abridged. Out of fifty-two cases, fifty-one covered in from two to three days.

The other forms of acute rheumatism are equally benefited by salicylic acid. The mptoms, also, of chronic rheumatism, with its various complications, are greatly lieved by a similar treatment, especially the acute attacks often met with, and the in and swelling accompanying rheumatic arthritis, with contractions and deformity, e modified and relieved.

M. Sée has also applied the treatment of salicylic acid to gout, both acute and ronic, with the result of causing diminution of the pains and articular swellings. cute gout, he says, ceases under its influence in forty-eight hours. In chronic gout, hich may have lasted for years, the joints have become more flexible, and all the ymptoms have been relieved. The principal indication in this disease is the elimi-ation of uric acid from the blood, which the salicylates promote.

In painful affections caused by gravel, such as nephritic colic, this medicine ppears to terminate the crisis and favors the expulsion of the foreign body. It is so a valuable remedy in various affections of the bladder. In neuralgia, salicylic id acts as a sedative, and has been found beneficial in sciatica, tic douloureux, nd headache. It has also been found serviceable in diseases of the spinal cord, in yelitis, locomotor ataxy, sclerosis, hyperæsthesia, cramps, and other painful fections, over which the acid has a calmative and sedative effect.

The therapeutical effects of salicylic acid may be summed up thus:

1. As an external antiseptic it has no advantage over others except its freedom om smell. As an internal disinfectant it has no apparent effect.
2. As an antipyretic its properties are doubtful.
3. In acute articular rheumatism its effects are sure and rapid, and a cure of this sease may be confidently prognosed in from two to four days.
4. It greatly relieves chronic rheumatism, diminishes the pain and swelling of the oints, and favors the movements of the limbs, even after years of suffering.
5. In acute and chronic gout its action is the most remarkable, causing the former o disappear in two or three days, moderating and even curing all the symptoms of he latter.
6. It is employed with benefit in neuralgiæ of all kinds.
7. It acts as a sedative in painful affections of the spinal cord.

The Internal Administration of Glycerine.

In May last Dr. CATILLON read a paper at the Société de Thérapeutique, giving n account of an experimental investigation he has made concerning the effects of lycerine administered internally. He concludes as follows:—1. Glycerine exerts a avorable effect upon nutrition, increase of weight resulting from its use. This effect s produced by its furnishing a combustible aliment, the fatty matters of the economy s well as the azotized being economized, while the production of animal heat is ather increased than diminished. 2. Glycerine increases the appetite, so that, under he influence of the augmented alimentation which its use induces, the proportion of rea augments in the urine. 3. In spite of this, glycerine diminishes in an absolute nanner the production of urea in the economy. 4. Glycerine is eliminated princi-

pally by the kidneys, and that very rapidly. 5. It remains but a short time in the blood, not being found there an hour or two after its ingestion. 6. It does not diminish the normal proportion of sugar in the blood, except when given in very large (*massives*) doses; and if it is useful in diabetes it is so only by modifying nutrition. 7. Glycerine has laxative properties. 8. Given in large doses it only kills when given at once. (Dogs will bear quite well 200 grammes a day, given in divided doses, and even twenty grammes per kilogramme of their weight without being much inconvenienced.) 9. Doses of from fifteen to thirty grammes per diem are strengthening and regulative of the digestive functions, and doses of from forty to sixty grammes stimulate the kidneys.

On the Antagonism between Morphia and Atropine.

After numerous experiments (*Ann. di Clinica*, No. 77, 1877), Dr. CORONA has drawn the following conclusions:—

1. Atropine increases respiration; morphia retards and modifies it.

2. Atropine produces convulsions in dogs and rabbits, but never sleep; morphia induces sleep and profound coma.

3. Atropine retards the heart's action; morphia increases it.

4. At the same time the former only slightly affects the temperature, while morphia lowers it.

5. Atropine dilates the pupil, and is one of the most constant and marked symptoms. Morphia may dilate, or contract, or may not exercise any influence.

6. Atropine injected in a large dose into the blood does not dilate the pupil, because it paralyzes at the same time the circular and radiating fibres of the iris.

7. Atropine always produces vaso-motor paralysis; morphia never.

8. Atropine affects reflex action, and always produces paralysis of the posterior part of the body in animals; morphia leaves reflex action uninjured, or sometimes increases it.

9. On microscopical examination the lungs, liver and abdominal viscera were normal after poisoning by morphia and atropine.

10. The heart and large vessels were filled with coagulated blood after poisoning by morphia, while the blood was fluid and black after poisoning by atropine.

11. In both cases the meninges were congested, while the cerebral substance was anæmic.

12. The poisonous dose varied enormously, according to the age and animal experimented on.

The toxic dose of morphia was less in dogs than in rabbits. Atropine was borne in large doses, and never produced death below fifty centigrammes, except in very small young animals.

Dr. Corona has made the following reflections:—

Morphia administered in small doses causes the disappearance of the symptoms produced by atropine and induces sleep; but atropine, even in a large dose, does not interrupt the stupor or symptoms of morphia. The injection into the veins of these two poisons, even in small doses, is sufficient to produce sudden and serious poisoning.

Dr. Corona concludes that there exists a physiological antagonism between morphia and atropine, but that on the contrary we cannot admit the theory of a therapeutical antagonism of these bodies, *vis a vis*, to one another. Morphia is useful in poisoning by atropine, but the latter is powerless in poisoning by morphia.

On Intravenous Injections of Liquor Ammoniæ.

Dr. F. C. SHAW, of Australia, writes to the *British Medical Journal*, April, 77 :—

In July, 1875, I was taken by Mr. T. N. Fitzgerald, a leading surgeon in Mel-rne, Victoria, to see a case in which ammonia had been successfully injected into veins of an apparently dying man. Two days before, Mr. Fitzgerald had been tily summoned to see the patient, a middle-aged man, who had for some time n suffering from profuse suppuration. On his arrival he found the man, to use own words, "apparently dead, with no pulse at the wrist, and no perceptible piration." He at once injected thirty drops of a solution of equal parts of liquor moniæ fortior and water. The patient was violently convulsed, but soon sat up ped and talked rationally. The good effect lasted some eight hours, when he in showed symptoms of collapse, and his usual medical attendant injected a like e of ammonia, a large portion of which must have found its way into the subcu-eous tissue instead of into the vein (median cephalic), but it produced no decided ect. Mr. Fitzgerald then again injected successfully. The convulsive movements re more violent than before, but the ultimate effect was most satisfactory, and no urn of the alarming symptoms appeared. At the time when I saw him, about rty-six hours after the last injection, he was doing well, and, I was told, subse-ently recovered completely. The ammonia that had escaped under the skin duced a large slough, as might be expected; but if, in injecting, the vein be arated thoroughly from the surrounding tissues, or perhaps even raised from m by the insertion of a probe under it, so that the operator may be quite sure t the nozzle of the syringe enters the vein, such an accident cannot occur. This atment seems to produce a most direct and powerful stimulation of the heart, and ght be worth a trial in cases of impending death from chloroform.

On Chrysophanic Acid.

Some interesting observations on this new remedy are communicated to the ritish *Medical Journal*, May 19th, 1877, by Mr. B. SQUIRE. He writes :—

Chrysophanic acid being soluble in alkaline (but not in acid) fluids, I made three servations with draughts composed of ten grains of the acid, fifteen minims of quor potassæ, and three ounces of water, allowed to digest during three days. heir action was so evident, that I found it impossible to use any more so large ses. I, therefore, made seven other observations on the effect of similar draughts ntaining only six grains, and I found them to take all the effect which a dose of teen grains given as powder takes.

I made sixty observations with pills containing either the acid or the crude owder combined with confection of roses. I confine my remarks to those contain-g the acid, since I observe no essential difference in action between them. Each ill contained four grains of chrysophanic acid. I find the action of the drug in this orm more uniform than in any other, except that of an alkaline draught. Eight rains are sufficient to take with effect in both kinds upon the majority of persons. Action is delayed almost invariably beyond two hours; often, if sleep intervene, the lose taken at night does not operate until the next morning. In that case, sickness, s always, is the first effect, but the purging ensues almost immediately.

It appears, then, that to give chrysophanic acid in the form of a pill, whereby its diffusion in the stomach is delayed, or as a partial solution (in an alkaline fluid),

enhances its powers; for eight grains in the former case and six grains in the latter seem equivalent in power to fifteen grains given as powder. At the same time, by both these means its action is rendered more equable, and in both, although chiefly in the latter, delayed. On the other hand, neither increased action nor the greater facility of absorption offered by these means increases depression.

Lastly, I repeat that four grains of the resin (which I do not know to have any irritant power as a topical application) are equal to from fifteen to twenty grains of the acid as measured by its effects. From these three hundred and nineteen observations, I conclude—

1. That chrysophanic acid is an emetic purge; that its action is as certain, when given in appropriate doses, as that of any other drug which acts in either of these ways; that, if either kind of action should be wanting, on account of the dose having been too small, it is the purging which will fail to appear; but that is rare.

2. That its action is favored by its exhibition in a manner favorable to its absorption; *i. e.*, by its diffusion in water, by its exhibition as a pill, and, above all, by its combination with a strongly alkaline fluid; that its action may be delayed by sleep and modified by a full stomach.

3. That its dose is, as powder, not less than six grains for babies; at twelve years one may give ten grains; above that age, fifteen grains, a dose which it is not often necessary to increase. As a simple draught, perhaps ten grains are enough for most adults. As an alkaline draught, six grains are an average dose, if three days have been allowed for digestion and partial solution. As a pill, eight grains are an average dose, six grains often suffice, twelve grains are too much.

4. That the most convenient form for exhibition is, for adults, that of a pill. In children, the powder, which must be mixed with honey or jam, since it cannot be mixed with water; it is tasteless.

5. Lastly, that I see reason to regard chrysophanic acid as a useful addition to our list of remedies, because it affords a means of clearing out the *primæ viæ* with a thoroughness and promptitude not equaled by any other medicine with which I am acquainted, a combination of tartar emetic and ipecacuanha alone excepted; while it is at once more certain to produce *both* purging and vomiting than that, and is unattended by the serious depression which is often an inseparable objection to its employment; that the power of evacuating large quantities of bile which I claim for chrysophanic acid especially fits it for the purpose named.

Hyoscyamine in the Treatment of Some Diseases of the Insane.

Dr. LAWSON'S experience, given in the *Journal of Mental Science*, October, 1877, is, that hyoscyamine appears to possess great value in the treatment of cases in which aggressive and destructive excitement is the leading symptom of insanity, in cases of chronic mania with special delusions of suspicion, mania of a subacute or recurrent form, and simple mania, characterized from the first more by agitation than excitement, and due to the existence of obscure delusions and hallucinations. In the treatment of the excitement of general paralysis, in the epileptiform seizures of the same disease, and in the epileptic status, it is also of use. * * * * But perhaps the most striking results from the use of the drug occur in the treatment of such patients as willfully or impulsively destroy large quantities of clothes and bedding.

He reports some very striking cases in exemplification of these views. We have

noderate doses of the drug act well in cases similar to some of those he describes, re inclined to believe that asylum physicians will find it useful in certain cases, lly selected for its administration. But we would deprecate a rash or a too ive use of this deliriant.

Lawson's conclusions are as follows :—

at hyoscyamine rarely causes a decided exanthematous eruption.

at very rarely (in two cases out of many hundreds of administrations) it causes temesis.

at in small continuous doses it does not produce, in suitable cases, dryness of roat or tongue, and does not interfere with the appetite or induce nocturnal sness.

at in cases of retention of urine occurring in the progress of central nervous es, and due evidently to a spasmodic affection of the sphincter of the bladder, yamine produces free and voluntary diuresis.

at small doses act powerfully in cases of locomotor ataxy, and other conditions cterized by frequent interrupted nervous discharges, and generally considered associated with sclerosis.

at a certain tolerance is established in man, as in the lower animals, by the ent administration of the drug.

e following cautions may also be useful, viz. :—

at in the aged and in patients showing marked signs of arterial disease, the should be administered with great caution.

at it should be freely diluted.

at it should be avoided in cases of furious mania, when great excitement exists, rtificial feeding is likely to be required for some time.

at the extractive hyoscyamine should be prepared in small quantities, and in a small stoppered bottle, to lessen the danger of change from oxidation and influences.

these precautions are kept in view, the drug can be extensively employed as a ble therapeutic agent, and one capable of increasing the recoveries in, and ishing the expenditure of, lunatic asylums.

the Therapeutical Employment of the Double Cyanide of Potassium and Zinc.

s. E. Lelu and G. Lugan, of Paris, state, in the *Bulletin de Thérapeutique*, 1877, that in January, 1875, Dr. Luton published a long account of the oyment of the cyanides in the treatment of articular rheumatism, and the ss of this mode of treatment was so striking as to draw general attention to the ts. But the inevitable alteration, and consequently the variable composition, the cyanides employed induced the authors of the present paper to avor to find a product of easy preparation, and at the same time of stable position—that is to say, always containing the same amount of cyanogen, and equently being identically alike in all pharmaceutical establishments. Dr. Lelu M. Lugan, in the first place, pass in review the cyanic compounds hitherto loyed, and the objections to the use of each. Hydrocyanic acid is very easily mposed, and, moreover, in its concentrated state it is very dangerous to prepare. e cyanide of potassium is also very easily decomposed, and is hence very variable composition. The cyanide of zinc is stable, but insoluble, and it is not decom- ed, but dissolved by acids, and thus no doubt it acts in the human system; but

the acidity of the gastric juice differs in different individuals, and hence the efficacy of the cyanide in some cases and its failure in others. From these considerations the authors conceived the idea of having recourse to the double cyanides, and they selected the double cyanide of potassium and zinc already proposed by Gerhardt. This salt is obtained by dissolving cyanide of zinc in a solution of cyanide of potassium. The cyanide of zinc is first prepared by precipitating cyanide of ammonium by sulphate of zinc quite free from iron. The precipitate is thrown on a filter and washed with boiling water, and then separated and dissolved in a solution of cyanide of potassium. After evaporation the double salt crystallizes in beautiful octohedra, which are transparent and anhydrous. The cyanide thus obtained has a sugary taste, but without any smell of hydrocyanic acid; it is very soluble in cold water, has a very constant composition, and is easily attacked by acids with the disengagement of prussic acid. The authors prepared fifty to sixty grammes of this salt about two years ago, and since that time it has undergone no change, and although the vessel in which it was kept was frequently uncorked, it never allowed the least smell of prussic acid to be perceptible. One gramme (about fifteen grains) of this salt contains .42 of cyanogen, corresponding to .44 of anhydrous prussic acid. They have employed this cyanide only in three cases, of which they give the particulars, all being cases of articular rheumatism. The results obtained were cessation of pain, reduction of the temperature, lowering of the pulse, and diminution of the duration of the disease, and were similar to those recorded by Dr. Luton with the cyanic compounds he employed, but which, however, were of three different kinds. Dr. Lelu and M. Lugan consider that the double cyanide now described possesses all the beneficial qualities of the different cyanides formerly recommended, without their inconveniences, for it is unalterable in the air, it is soluble, its chemical constitution is constant, and it is easily decomposed by acids, even the weakest ones. They recommend it to be given with distilled water containing some simple syrup and some essence of peppermint.

III. ANÆSTHETICS.

Syncope from Ether Inhalation.

The following description of a not unique accident from ether is reported to the *British Medical Journal*, May 19th, 1877, by Dr. R. J. Pye-Smith:—

Harriet T., aged 14, was admitted into the Sheffield Public Hospital on May 3, 1877, suffering from disease of the right hip, of two months' duration. She was a delicate-looking child, and did not appear so old as fourteen. She was somewhat feverish (temperature about 100 degrees Fahr.); the heart's action was rapid (about one hundred and twenty beats per minute), but it was not accompanied by any bruit, and the pulse was regular and fairly strong. As the hip was completely flexed and very tender, it was determined to administer ether, in order to examine the part and to apply a splint. Accordingly, on May 5th, the assistant house surgeon, Mr. A. H. Denton, proceeded to anæsthetize the patient, who was lying in bed. An American inhaler was used, composed of a number of folds of webbing stretched on a frame, surrounded, except at the top, by india-rubber; and an ounce

ther was poured on to it. At the first whiff the child began to cry and to strug- slightly; but on being told to breathe quietly, she at once began to inhale in exemplary manner—long, deep, regular respirations—and in less than a minute evidently becoming anæsthetized. I was commencing to manipulate the limb, n we noticed the breathing was quickly becoming extremely shallow; the pulse, ever, was good, and the inhaler was kept to the face. In a few seconds more movements of the chest and abdomen were scarcely perceptible, and the face, ch had till now been of good color, began to be blanched. The inhaler was at e removed; but the pulse now began to fail, and was soon scarcely perceptible at wrist, though the heart was easily felt beating against the chest-wall. The ow was pulled from under the head, and the chin thrown forcibly upward by sure behind the angles of the lower jaw. The muscles seemed to be fully xed, and the surface quite insensitive. The case looked exactly like one of syn- e from chloroform, and I expected to have to resort to artificial respiration. On ping the chest and face, however, with a cold, wet towel, slight inspirations were en, and very soon the head was moved, color returned to the face, and the pulse in felt at the wrist. On moving the diseased joint, the child opened her eyes and an to cry, and presently asked if we were putting her leg straight. The inhaler, h two drachms more of ether, was now reapplied, and again the patient began to ire very freely. Only a few inspirations of ether were allowed, but they were e enough to produce complete anæsthesia, and, although the pulse did not again , respiration soon became extremely feeble, as it had done before. The inhaler but occasionally applied, for short periods, and without being replenished with r, while a dislocation of the hip was reduced, and weights and a long splint e applied to the limb. In about twenty minutes, from the commencement of alation, when all was finished, the child awoke and talked a little nonsense, but soon quite rational and comfortable. There was no sickness nor other erved ill effect of the anæsthetic. The ether was of specific gravity .735, and n the same bottle as had been successfully used the day previous for anæsthet- g a boy.

Ether as an Anæsthetic.

he *Doctor*, July, 1877, has the following observations on this subject:—

t has always seemed to us, it says, the height of folly to declare there could be danger in any anæsthetic. The lesson taught by the late death from nitrous de has, it is to be hoped, been well learned, and we shall in future hear less of the olute safety of any agent capable of depriving a person of all sensation. Some es in which ether has been followed by alarming symptoms have lately been orded. They have been termed syncope, but the word is not appropriate, as the art continued to beat after respiration ceased. This is what should have been ticipated. When death is produced by ether the animal's heart continues to beat g after the arrest of respiration. The pulse is quickened by ether, and maintains force through a long state of anæsthesia. In these facts lies the safety of ether. ut it should never be forgotten that there is danger at a certain stage, and the nger is from the side of the respiration, which at length ceases. Stertorous eathing proceeds from paresis of the muscles of the palate, and should lead to the her being suspended. So respiration growing more and more shallow and less equent is a warning, and should not be overlooked. It is very rare that the heart ils, perhaps never. Pallor is rare, too, and should excite attention if it occur.

But we repeat, the danger of ether is from the side of respiration, that of chlor form from the heart, and this fact goes far to explain their relative safety. chloroform narcosis the danger is much more sudden. Ether gives warning.

Nitrite of Amyl in Threatened Death from Chloroform.

The *British Medical Journal*, August 18th, 1877, says: We have received fr a physician the following interesting report for publication:—

On the 9th instant I was asked by a professional friend to administer chlorofo to a patient of his, from whom he was about to remove a fatty tumor, situated the left lumbar region. The patient in question was about forty-nine years of a married, the mother of several children, of thin, spare habit, but otherwise in g health. She was nervous, and apprehensive of the result, entreating me not to g her too much chloroform. Having previously examined the heart and found all sounds normal, I gave her about two teaspoonfuls of brandy undiluted, and a waiting a few minutes, and placing her in the recumbent posture, I commenced administration. The chloroform I used was Duncan & Flockhart's, upon the pu of which we can always depend. I poured a measured drachm upon a piece of enveloped in a towel. I held it some little distance from her mouth and nose, let her inhale slowly. My friend noted her pulse, whilst I carefully watched respiration. The first dose did not produce any effect, and I then used anot drachm, which soon caused a good deal of excitement, incoherent talking and st gling, the patient striving several times to snatch the inhaler from my hand. gradually subsided, and she appeared to be passing into the third stage of anæsthe when she made an abortive attempt to vomit, raised her head from the pillow, to my friend's great alarm, the pulse flickered and stopped altogether; she gav gasp; foam gathered on her lips; her jaw became rigid, and to all appearance was dead. I immediately withdrew the chloroform, my friend dashed some water in her face and pulled her tongue forward, whilst I commenced artificial piration, after Marshal Hall's method, but without success. We then poured s nitrite of amyl on lint and held it to her nostrils. In such emergencies it is im sible to judge the flight of time correctly, but I should say in ten seconds there a flushing of the face, the pulse was again felt, and, to our great joy, the important function of respiration was again restored, the woman being rescued a rently from the very embrace of death.

Post-mortem in a Death from Nitrous Oxide.

A death following the administration of nitrous oxide gas took place at M chester, England, in April, 1877. It would appear that fatty degeneration much to do with the case. The description is given from the *Medical Times Gazette*, April 28, 1877:—

The examination of the body took place seventeen hours after death. R mortis was well marked, and there was considerable post-mortem lividity. T was a good deal of fat beneath the skin, in the omentum, upon the external sur of the heart, and in the other usual localities. The heart and pulmonary ar were opened *in situ*. The right side of the heart was distended with fluid blo the left side was empty. There were two or three slight patches of atheroma in aorta, and upon one of the aortic valves. There was some little evidence of f changes in the slightly altered color and consistence of the walls of the he The coronary arteries were examined, and found free from disease. The mu

mbrane lining the trachea and bronchi was congested. Some mucus was found hese tubes, but no blood or other foreign body. There was distinct thickening the arytæno-epiglottidean folds and of the vocal cords. The lungs on both sides e gorged with dark fluid blood; at the left apex there was an old fibrous cicatrix. liver was enlarged; its tissue was very friable, and of a dirty yellowish-white r. The kidneys were full of blood; otherwise perfectly healthy. The bones of skull were of unusual thickness. The visceral arachnoid was thickened and que. On removing the brain a large quantity of cerebro-spinal fluid made its pe, and the cornua of the ventricles were found dilated. The brain substance healthy, and its vessels full of blood.

Death from Methylene Bichloride.

A death from bichloride of methylene is reported in the English journals for June . The patient was fifty-six years of age, and was to have had a necroseed bone re- ved from his leg. He was first given the methylene, which was changed for ether, some cause, which is not stated, but which may have been some alarming symp- produced by the methylene. Having taken the ether with safety until anæsthesia obtained, the operation was proceeded with, but, the patient being allowed to ke too soon, the methylene was again resorted to. In fifteen seconds he was dead. post-mortem examination was made, but some ingenious person hazarded a guess t there had been unobserved apoplexy, and the jury adopted the hint, and voted death accidental, and the medical officers free from all blame.

Fatal and Dangerous Effects from Ether.

The following cases are given in the *Practitioner*, August, 1877, by Dr. SHREVE:—

CASE 1. Was seen in consultation. The patient was a young man, sixteen years age, of dark complexion, and good muscular development. His previous habits d been good, and also his general health. One month previous he had received a tol-shot wound. The bullet entered just above the knee, and emerged on the sterior part of the limb, just below the popliteal space. His condition when seen s that of anæmia, consequent on loss of blood at the time of the injury, and e pain and inflammation that succeeded. The pulse was regular and weak, the ce was extremely pale, and respiration regular; he complained of pain in the gion of the knee, which was very much swollen and tense. Ether was adminis- ed, and he passed under its effect very pleasantly: there was no excited period ring its inhalation. An incision was made into the most dependent part of the elling, and a large quantity of old clots escaped. This was followed by quite a part hemorrhage from the direction of the popliteal artery. This hemorrhage was ntrolled by the immediate application of pressure. The respiration, which up to is time had been perfectly regular and quiet in its character, suddenly stopped. He had inhaled only three ounces of ether, and the sponge had been removed from is nose for a minute or two. The face and lips were extremely pale, and arrest of espiration took place with such insidiousness that it seemed as if the patient had uddenly omitted a breath. The pulse was regular and feeble at the wrist, and for a moment it seemed like the slight arrest of respiration seen in the administration of ether, where a shake arouses the patient, and he makes a deep inspiration, and goes on breathing regularly. Artificial respiration was resorted to, ammonia injected hypodermically, stimulating enema administered, all without avail, as the patient

never breathed again, although the pulse continued perceptible at the wrist for some time after the stoppage of the respiration.

CASE 2.—Was a case of abortion, in a lady aged about forty, married, and of dark complexion. She was fleshy and sallow, and had been flowing for forty-eight hours, when I was called to see her in consultation. Ether was administered to relieve the pain of removing the placenta, as the uterus was situated high up in the pelvis. The pulse before the operation was moderately strong and slightly accelerated. The patient passed under the effect of the anæsthetic without a struggle. The placenta was removed in pieces, it being adherent to the wall of the uterus; its removal was accompanied by no undue amount of hemorrhage, and the etherization was discontinued. Having examined the pulse, and found it somewhat fuller than before the operation, and the respiration regular, I left the attending physician in care of the patient, and went to another part of the room to wash my hands, where I was joined by the doctor, and while engaged in conversation with him and at the same time looking at the patient, her respiration suddenly ceased. Our efforts for her relief were directed entirely to artificial respiration. After about two minutes she began to respire again, at first feebly and at intervals, but soon after with strength and regularity. The pulse was regular and weak at the wrist during the whole period of stoppage of the respiration.

CASE 3.—Was seen in consultation. The patient was a lady of about forty years of age, married, and had had several children. She had been ill with metrorrhagia for eleven years, and presented a degree of anæmia that was most ghastly. Her complexion was perfectly waxy, and almost transparent in its whiteness. On digital examination of the vagina, the cervix admitted the tip of the index finger, and was full of granulations. A sponge-tent was introduced, and left until the next day when it was decided to etherize sufficient to relieve the pain of the examination of the uterine cavity. The immediate effect of the etherization was all that could be wished. The whole lining membrane of the uterus, like the cervix, was lined with granulations and fungosities. While the attending physician was confirming my diagnosis the respiration suddenly ceased. The head, which had been low, was placed still lower, and artificial respiration was immediately resorted to. After persistent efforts for about three minutes, that seemed an eternity, I discovered a slight superficial respiration, which we continued to supplement and assist until respiration became normal. The pulse remained about what it was before the etherization, both as to its regularity and strength, during this whole period. I might add that the action of the sponge-tent proved entirely remedial, although originally used only as a means of diagnosis.

GENERAL MEDICINE.

I. HISTORY OF MEDICINE.

The Medical Art in Ancient Rome.

he subjoined interesting sketch is from the *Lancet*, July 28, 1877 :—

ıfter Julius Cæsar, at whose instance practitioners of the healing art were ıitted to the franchise, are found the germs of what the French call an "assist- e publique." We find, for example, on a funeral inscription, that each of the groups into which the performers at the vast "circuses" were divided had its sional surgeon. Still later in the imperial history, when gladiatorial exhibitions ıme in constant demand, gladiators were furnished by contract, and in the con- t medical attendance was always an expensive item. The emperors and the ı functionaries of state had quite a staff of physicians and surgeons attached to r houses. But even down to that time we discern no organization of medical rities. True, there were associations or "collegia" of artisans, many of them ient, and all of them so powerful that senatorial decrees hardly affected them; the medical assistance they employed and paid for, pretty much on the system our workingmen's clubs, could not be called charitable. Pagan Rome, in fact, nothing for the poor, who, if attended to in sickness at all, owed such attention he bounty of their rich patron.

n the other Italian cities there were "archiatri," and in these we find something roaching the dispenser of gratuitous medicine. The "archiatrus" was never rd of before the reign of Nero, who was attended by one called Andromachus, ence it has been supposed the medical functionary so called was a physician who ted upon princes. But Dr. René Brian, the librarian to the Académie de decine, whose treatises on the profession under the Romans are as ingenious as y are scholarly, shows that there were several categories of "archiatri," and that, le some, like Andromachus, might be attached to the Court, others had an official public appointment, for which they enjoyed a salary and certain privileges. eece was far before her Latin sister in the institution of archiatri. Her civic gistrates were in duty bound to superintend the sanitary well-being of their pective communities, and this duty they made a means of self-ingratiation with people. The archiatrus, if especially skilled, would be in request with more n one municipality; and Herodotus mentions Democedes of Crotona, for whom al cities outbid each other, Ægina giving him one talent (5500 francs); Athens,) minæ (9200 francs), and the Prince of Samos two talents (11,000 francs). om Greece this employment of archiatri passed into Southern and Central Italy, t it was not till A.D. 368 that it was adopted by Rome. In the Theodosian code ook xiii) we read that there have been instituted as many archiatri as there are gions or quarters in the city; and that these physicians, knowing that their aries are drawn from the people, attend the poor in preference to the rich. When

vacancies occurred in their "collegium," they were filled up by the vote of the surviving members, and this vote was submitted for ratification to the emperor. These archiatri were especially charged to attend the poor, and Dr. Brian thinks that Rome would never have enjoyed such a charity but for the spread of Christianity. In the country, the curia, or, as we should say, the town council, elected them, while the chief proprietors acted as assessors on the occasion, and owed this privilege to the heavier rates they disbursed for the maintenance of the institution. The archiatri, it should be added, were bound to train pupils; but this obligation was binding only in the country, for Rome already had her "Schola Medicorum," an establishment which was at once a "medical school," an "academy of medicine," and a "medical club."

The First Medical Fee-bill in Virginia—Comparative Compensation of the Medical Profession One Hundred and Forty Years Ago and at the Present Time.

Dr. L. S. JOYNES, Emeritus Professor of Physiology in the Medical College of Virginia; Secretary of the Virginia State Board of Health, etc., Richmond, Virginia, read before the Richmond Academy of Medicine, December 19th, 1876, a paper on this subject, which appears in the *Virginia Medical Monthly*, April, 1877:—

I presume it would not be uninteresting to members of the Academy to learn something about medical fees in Virginia in colonial times, and how the compensation of our great-grandfathers in the profession compared with that which we claim to-day. I, therefore, submit a fee-bill established by law in the year 1736, one year before the town of Richmond was laid off by Colonel Byrd, several years before the building of St. John's Church, and forty years before the Declaration of Independence. I was first informed of the existence of this fee-bill by a notice in a medical journal of a brochure by Dr. J. M. Toner, of Washington, entitled "Contributions to the Annals of Medical Progress and Medical Education in the United States, before and during the War of Independence," published in 1874. As I did not possess and had not seen a copy of this publication, I sought and found the legislative act containing the fee-bill in that precious repository of the old laws of Virginia, "Hening's Statutes at Large" (vol. iv, p. 509). The act was passed in August, 1736 (the tenth year of the reign of George II), and is as follows:

"*An Act for Regulating the Fees and Accounts of the Practicers in Phisic.*

"I. *Whereas*, The practice of phisic in this colony is most commonly taken up and followed by surgeons, apothecaries, or such as have only served apprenticeships in these trades, who often prove very unskilful in the art of a phisician; and yet do demand excessive fees, and exact unreasonable prices for the medicines which they administer, and do too often, for the sake of making up long and expensive bills, load their patients with greater quantities thereof than are necessary or useful, concealing all their compositions, as well to prevent the discovery of their practice, as of the true value of what they administer: which is become a grievance, dangerous and intolerable, as well to the poorer sort of people as others, and doth require the most effectual remedy that the nature of the thing will admit:

"II. *Be it therefore enacted, by the Lieutenant-Governor, Council, and Burgesses, of this present General Assembly, and it is hereby enacted, by the authority of the same*, That from and after the passing of this act, no practicer in phisic, in any

on or suit whatever, hereafter to be commenced in any court of record in this ny, shall recover, for visiting any sick person, more than the rates hereafter tioned, that is to say,

rgeons and apothecaries, who have served an apprenticeship to those trades, be allowed,

	l.	*s.*	*p.*
every visit, and prescription, in town, or within five miles,	00	5	00
every mile, above five, and under ten, - - - - -	00	1	00
a visit, of ten miles, - - - - - - - - -	00	10	00
for every mile above ten, - - - - - - -	00	00	06

With an allowance for all ferriages in their journeys.

	l.	*s.*	*p.*
urgeons, for a simple fracture, and the cure thereof - -	02	00	00
a compound fracture, and the cure thereof, - - - -	04	00	00

ut those persons who have studied phisic in any university, and taken any ee therein, shall be allowed,

	l.	*s.*	*p.*
every visit, and prescription, in any town, or within five iles, - - - - - - - - - - - - -	00	10	00
bove five miles, for every mile more, under ten, - -	00	1	00
a visit, if not above ten miles, - - - - - - -	1	00	00
l for every mile, above ten, - - - - - - -	00	1	00

With an allowance of ferriages, as before.

III. And to the end the true value of the medicines administered by any prac- r in phisic may be better known and judged of, *Be it further enacted, by the hority aforesaid*, That whenever any pills, bolus, potion, draught, electuary, oction, or any medicines, in any form whatsoever, shall be administered to any k person, the person administering the same shall, at the same time, deliver in his , expressing every particular thing made up therein; or if the medicine adminis- ed be a simple, or compound, directed in the *dispensatories*, the true name thereof ll be expressed in the same bill, together with the quantities and prices, in both es. And in failure thereof, such practicer, or any apothecary, making up the scription of another, shall be nonsuited, in any action or suit hereafter commenced, ich shall be grounded upon such bill or bills: Nor shall any book, or account, of y practicer in phisic, or any apothecary, be permitted to be given in evidence, fore a court, unless the articles therein contained be charged according to the rection of this act.

"IV. *And be it further enacted by the authority aforesaid*, That this act shall ntinue and be in force for and during two years, next after the passing thereof, d from thence to the end of the next session of assembly."

The preamble to the foregoing act presents several points worthy of special note, iz.: That the great body of medical practitioners in Virginia at that date were mperfectly qualified men, without a regular medical education or medical degree; hat surgeons were evidently rated lower in professional rank than physicians, the ormer being still, in the mother country, associated with the barbers in one company, n association that was not severed till nine years later (1745); that the apothecaries,

in Virginia as in England, boldly entered the field of practice in competition with the physicians, instead of confining themselves to the humbler duty of compounding prescriptions for the latter; that it was customary in those days (as it continued to be long after) for both surgeons and apothecaries to be regularly *apprenticed* to those callings (or "trades," as they are significantly styled in the act); that polypharmacy, or excessive drugging, and the use of secret remedies, attained the extent of public evils, requiring suppression by legal enactment; and finally, that doctors' bills were quite as much complained of then as now (perhaps with more justice).

The act recognizes, in the most emphatic manner, the superior claims of the regularly-educated medical man, bearing a University degree, by according to him a double fee for a visit and prescription in town or within five miles, and double mileage when the distance exceeded ten miles. From Mr. Jeaffreson's interesting "Book About Doctors," I learn that in England also, in the early part of the last century, ten shillings was the customary physician's fee, while the surgeon was allowed a shilling a mile, "be his journey far or near," besides specific fees for particular kinds of service.

But how do the rates of 1736 compare with those of 1876 as to the actual compensation afforded—their adequacy to supply the physician with the necessaries and comforts of life—in other words, their *purchasing power?* In connection with this question, it is interesting to note that in the same year that the fee-bill was established the pay of members of the House of Burgesses was fixed by law at 10 shillings per diem, so that the town doctor got for his visit and prescription the same pay as the burgess for his day's service; whereas, during most of the time since the civil war, the per diem of members of the General Assembly has been $6, or *three times* our present fee for a visit; and even before the war, for many years, it was $4. As compared with the lawmakers, therefore, the change of time and circumstances has been greatly to the disadvantage of the doctors.

It must be explained that 10 shillings in colonial money were not equal to 10 English shillings, or shillings sterling. I find that an act passed in 1727 provided that the English crown piece (5 shillings) should pass in Virginia for 6*s.* 3*d.* According to this ratio, 10 shillings in Virginia currency were exactly equal to 8 shillings sterling. Now, 8 shillings sterling are equal to $1.94 (gold) of American money, or about $2.05 in greenbacks. Our colonial predecessors of Governor Gooch's time, therefore, got actually *more money* for their visits than we do, unless the visits were out of town; then the mileage, at the rate of a shilling a mile, made but a sorry addition to their fee.

As to the purchasing power of the 10 shilling fee in 1737, compared with that of the $2 fee in 1876, there is one important commodity with regard to which we are not left in any doubt. This is *tobacco*, which, at the time spoken of, even more than in these latter years, was the great staple of the colony. It was not only an article of merchandise, but a medium of exchange; if not exactly *money*, it was the basis of a currency. Taxes and church rates were levied in tobacco; fines were imposed in tobacco; and nearly all fees of public officers were appointed in tobacco. From several acts passed about the date of the fee-bill, it is clear that one shilling in currency was equivalent to 10 pounds of tobacco; so that the doctor's fee of 10 shillings was worth 100 pounds of that valuable commodity. At the present time, how refreshing it would be to the hard-worked practitioner to receive 100 pounds of tobacco per visit! Such a fee would be better than the sovereign which the London physician pockets, or even the guinea of former times; for 100 pounds of tobacco

w—the fair, merchantable article, such as is bought for shipping, to say nothing the finer grades—are worth from $8 to $9, sometimes more, sometimes less.

As it respects other commodities, while a complete list of the prices current at the riod in question could now hardly be obtained, our information with regard to em is sufficient to show that numerous articles of necessity were then purchasable much less money than at present. Mr. R. A. Brock, who is so well known as a voted student of the history and antiquities of Virginia, has kindly furnished with many items from the accounts, running from 1726 to 1732, of a reverend ntleman who combined the professions of parson and merchant in the county of sex. Among these items I find corn set down at from 6*s.* 6*d.* to 8*s.*—say $1.30 to .60—per barrel; oats, 1*s.* to 2*s.* per bushel; pork, from 1*d.* per pound to 14*s.* per t.; butter, 6*d.* per pound; 2 cows and 2 calves, 3*l.* 10*s.* (about $14); 2 head ung cattle, 2*l.*; sheep, about 6*s.*; 10 barrows (hogs), 6*s.* each, etc. The prices of me products in general were naturally kept down by the absence of large towns serve as markets, and create an active demand for what the colony could so undantly produce; and money had not yet begun to suffer that heavy decline in value which has taken place since California, Australia, and New Zealand have oded the world with their gold. Land, too, was cheap, as well as lumber, and the ges of labor; so that the medical man could secure a dwelling at a comparaely small cost.

Some articles, no doubt, especially of foreign growth and manufacture, and particularly of the class of luxuries, were dearer than at present, but these constituted much smaller proportion of the annual expenses than the more necessary domestic ticles before referred to. It should be recollected, too, that articles of English nufacture paid no duty in the colony, and were nearly as cheap here as in England; while the style of living was in general much plainer than at present, except mong the wealthier planters.

On the whole, there can be little doubt that the 10-shilling fee of old times went good deal further toward the support of a family than the $2 fee in these days of travagance and high duties on imports. So much can hardly be said with reference to the fees allowed to surgeons. A sum equal to about $8 of our money "for simple fracture and the cure thereof," and twice that amount "for a compound acture and the cure thereof," would hardly be considered "living wages" now-adays. It must be admitted, too, that the great majority of those who got the better es had to work very hard for their money. *Town doctors* were few in number, ecause there were few towns worthy of the name. Richmond and Petersburg, and e towns situated higher up the country, had as yet no existence, and Norfolk ems to have been at that time the only place of considerable population and ade. The others, including Williamsburg, the capital, and Jamestown, the former apital, were mere villages, and it was mainly by country practice that their physicians earned a livelihood.

In my search through the old statutes, I encountered one act of liberality (or ather justice) to the medical profession, which entitles the early colonial legislators o especial praise, and the more so, as exceptional favors to our fraternity are quite nheard of in the present age. As far back as 1660-61 (13th Charles II), an act as passed providing that, although existing laws forbade the recovery of accounts from the estate of a deceased person, those of physicians and surgeons should, in future, be excepted, and should be legally recoverable for attendance during an illness which resulted fatally. In case the patient recovered, his medical attendant

might avail himself of the aid of the law for six months after recovery, but no longer, a very stringent statute of limitations this, but one which no doubt had the salutary effect of discouraging long credits on doctors' bills.

On the other hand, the doctors of the colony were, from a very early period, subjected to legal censure and restraint in the matter of excessive charges. As far back as 1639, an act was passed with reference to this subject, which was re-enacted with an amendment in 1645–46, and again appears, with modifications, in 1657–58, and in 1661–62. In this last form the preamble makes the damaging recital "that the excessive and immoderate prices exacted by diverse avaritious and gripeing practitioners in phisick and chirurgery hath caused several hard-hearted masters, swayed by profitable rather than charitable respects, rather to expose a sick servant to a hazard of recovery, than put themselves to the certaine charge of a rigorous though unskilfull phisician, whose demands for the most part exceed the purchase of the patient, many other poore people also being forced to give themselves over to a lingering disease rather than ruine themselves by endeavouring to procure an uncertaine remedy;" and for the redress of these grievances, the act allows any person "conceiving the accompt of the phisitian or chirurgion unreasonable to arrest the said phisitian or chirurgion to the generall or county court, where the said phisitian or chirurgion shall declare upon his oath the true value, cost, and quantity of the drugs administred, for which the court shall grant order against the plaintiff with fifty per cent. advance, and such consideration for his care, visitts, and attendance as they shall judge he hath deserved; and if it shall appeare by evidence that the said phisitian or chirurgion hath neglected his patient while he was under cure, the court shall censure him to pay soe much as they in their discretion shall think reasonable." It was not until 1692 that this harsh act was repealed, as "being in itselfe unreasonable;" and then the physician was allowed "*cent per cent.* upon the first cost, of his "drugs and means."

How long the legal fee-bill of 1736 continued to rule in the colony I am unable to say. Though limited by the terms of the act to little more than two years, it is probable that it continued to be generally observed for a much longer period, for in following the legislation of the colony down to the beginning of the Revolutionary War, I find no further allusion to the subject.

Medicine Among the Ancient Egyptians.

The *Medical Examiner* for September 22d, 1877, states that the edition of the famous papyrus which Mr. George Ebers brought to light three or four years ago, and which he entitled "The Hermetic Book of Medicaments of the Ancient Egyptians in Hieratic Letters," is the theme at present of general discussion in Germany. The papyrus is in the library of the University of Leipzig, where, for the sake of better exhibition, it has been cut into twenty-nine pieces, each of which lies in a glass case. From palæographic and historical evidence, Mr. Ebers reckons that the document dates from the middle of the sixteenth century before the Christian era, and it is thought to contain one of the six books on medicine mentioned by Clement of Alexandria, namely, that referred to under the title, "*Περὶ Φαρμακῶν.*" The name of Hermetic books is derived from the Greek Hermes, which is the Hellenic name for the Egyptian god Thyoth, or Thoth, who is said to have revealed to mankind this sort of scientific knowledge. Of forty-two Hermetic books, thirty-six contained the whole Egyptian philosophy. Six of them treated on the structure of the body, on illnesses, on surgical instruments, on medicaments, on the eyes, and on female

complaints. It is probable that the Ebers papyrus is the oldest medical work
us, older than a corresponding text of Rig Veda. It is worthy of note that Egyp
state-paid doctors, who exercised their profession in accordance with written me
treatises long before the art of healing attained any scientific development ar
the Greeks; and it is from Egypt, as can now be proved, that the Greeks ma
drew their medical knowledge. Herodotus had expressed this opinion, but
statements have always been doubted. The emancipation of medicine
theology must, therefore, have taken place earlier in Egypt than in Greece. I
curious fact that even in the days of Herodotus specialists existed, some for the
others for the head, others for the teeth, others for the stomach and internal
lers (Bk. ii, 84). Homer, too, speaks of the Egyptian art of healing, calling
Egyptian a medical man. The anatomical knowledge of the Egyptians was prob
greater than has been assumed, but during the later decay of their medical ar
magical element seems to have crept in. The valuable papyrus is further intere
in a mythological sense, as it is stated to contain information respecting the Egy
deities, who were said to be subject to illnesses, and to be in the habit of curing
other.

Insanity and Witchcraft.

In the Morison Lectures on Insanity, for 1877, by JOHN SIBBALD, M.D.
lished in the *Journal of Mental Science*, October, 1877, the speaker gave some
ing facts of the number of insane persons burned for witchcraft:—

John Wier, the physician of Cleves, was the first to raise his voice with e
making protest against the atrocious murders committed in this infatuated
against witchcraft. Wier brings forward clear evidence to show that many
victims of that crusade were undoubtedly suffering from mental disease.
hardly necessary, indeed, to have detailed proof that many insane perso
believed to be witches, and were consequently driven to the dreadful stat
have, however, in the discharge of fourteen persons by the Parliament of
the year 1589, an interesting indication of what many cases must have
which the inquiry did not terminate so satisfactorily. The incident is als
ing as being one of the first occasions on which medical evidence of in
permitted to prevent the infliction of punishment. "Fourteen persons
to death for witchcraft appealed against the judgment to the Parliame
which for political reasons had been exiled to Tours. The Parliament
commissioners—Pierre Pigray, the king's surgeon, and Messieurs Le
and Falaiseau, the king's physicians—to visit and examine these wit
whether they had the mark of the devil upon them." Pigray, who
cumstance in his work on Surgery (Book vii, chap. 20), says "the v
in presence of two counselors of the court. The witches were all s
and the physicians examined their bodies very diligently, pricking
marks they could find, to see whether they were insensible to pain, w
considered a certain proof of guilt. They were, however, very sensi
ing, and some of them called out very lustily when the pins were d
If any of them had been suffering under local anæsthesia, so frec
cases of the nervous system, how inevitable would have been th
Fortunately they had fallen into merciful hands. "We found
Pierre Pigray, "to be very poor, stupid people, and some of th
of them were quite indifferent about life, and one or two of the

relief from their sufferings. Our opinion was that they stood more in need of medicine than punishment, and so we reported to the Parliament. Their case was thereupon taken into further consideration; and the Parliament, after mature counsel among all the members, ordered the poor creatures to be sent to their homes, without inflicting any punishment upon them." For a time the numbers who were executed for witchcraft were so great as almost to exceed belief. For many years Cologne burned its three hundred witches annually; the district of Bamberg its four hundred; Nuremberg, Geneva, Paris, Toulouse, Lyons, and other cities their two hundred. In Great Britain this form of persecution did not commence so early as in some other countries; but it continued longer than most of them, and seems to have been carried out with vigor. Every record that has been preserved mentions that the witches were hanged and burned, or burned without the previous hanging, "alive and quick." During the whole of James' reign, amid the civil wars of his successor, the sway of the Long Parliament, the usurpation of Cromwell, and the reign of Charles II, there was no abatement of the persecution. If at any time it raged with less virulence it was when Cromwell and the Independents were masters. During the first eighty years of the seventeenth century the number executed has been estimated at five hundred annually, making the frightful total of forty thousand.

These numbers are probably to be regarded as only a rough estimate of the facts. But if we suppose that a large proportion of the annual five hundred were, as we have reason to believe, persons of unsound mind, it becomes interesting, if not important, to reflect for a moment on the bearing of such a fact on the proportion of insanity in the country. According to the proportions which are furnished by the statistics of insanity at the present day, a population such as that of England in the seventeenth century would have furnished about two thousand persons annually who would, according to our present views, have been placed in asylums. The terrible deduction which an acceptance of such a statement would force upon us is, that under the rule of the Stuart kings, a proportion of nearly one out of every four persons who would, with our present views, have been sent to an asylum was actually sent to the stake and burned as a witch. It was so far a terrible solution of problems regarded at the present day as of the utmost importance, how to deal with patients so as to prevent recurrence of their malady, and how to prevent them from propagating an insane predisposition to a succeeding generation.

Anæsthetics in Chinese Medicine.

Dr. J. DUDGEON writes to the *Medical Times and Gazette*, October 27th, 1877:—

With the highest civilization of all Asiatic countries, China stands lowest in medicine. The writer falls into a grievous error in stating *ma-yo* to be a specific name for Indian hemp. The term literally means anæsthetic medicine, and is applied in a generic sense to medicines of this class. There is no drug to be found either in the shops or books of China under this name, and the Russian physician Tatarinow has fallen into an error in calling it *cannabis indica*. The late M. Stanislaus Julien, of Paris, called attention in 1849 to the employment of this class of medicines in China in ancient times. Other substances besides hemp entered into these benumbing recipes, such as the datura, a solanaceous plant, probably identical with the *atropa mandragora*; also aconite, hyoscyamus, etc. Some of these drugs form constituents of the formulæ said to be employed by kidnappers of children and robbers, and are therefore naturally forbidden in China to be sold or employed.

counterpart of this practice is found in early times in the West. The wine of dragora was known in Greece, and is mentioned by Diascorides as administered evere pains, insomnia, and in operations with the knife or cautery. Another aration of the same, called morion, caused infatuation and took away the n. Pliny refers much later to the same substance, and Lucius Apuleius A.D.) tells us that under the administration of half an ounce of the wine a man have a limb removed without pain or sense.

he Indian hemp, under the name *bhang*, is extensively used by the Mohamme- and others in Central Asia at the present day. One of the names for hemp in a is *hanma*, of Sanscrit origin, a word not unlike the German *hauf;* and our p and the sounds *hannap* and *kannap* seem to run through nearly all languages. most wonderful properties are ascribed to the hemp. Persons with ulcers, it is cannot look upon it without dying. Its antidote is linseed or huma. Taken cess, the spirits and demons may be seen; it confers prophetic powers; it is times taken by persons wishing to indulge in spiritualism, and it is used as an lote to forgetfulness. It is supposed to prevent the hair turning white, and is equently said to stop the advance of age. These foreign substances are usually werful, and their action so marvelous, that they are seldom, if ever, prescribed he native faculty. I shall say nothing of the value of Chinese medical works, aining as they do so much that is shrewd and practical, with the most fanciful ries and puerile and ridiculous statements made in the most grandiose and ime style. Although we are indebted for rhubarb, camphor, tea, etc., to China, r we need hardly look for any new discoveries, and certainly none that is to ance us in refined civilization and material and scientific progress at such a d rate.

II. STATISTICAL MEDICINE.

The Relative Frequency of Diseases in the Two Sexes.

he following valuable table is given in an article in the *British Medical Journal*, ril, 1877, by Dr. J. BRAXTON HICKS:—

RELATIVE FREQUENCY OF DISEASES IN THE TWO SEXES.

		MALES.	FEMALES.
anosis		++	+
l cases of congenital malformation (Bryant)		142	71
ngenital and developmental diseases (Registrar-General's report)	1866, 1st year	7.027	5.311
	1866, 2d year	1.067	.941
" " "	1868, 1st year	6.797	5.395
	1868, 2d year	.994	.910
ngenital talipes		.97	.48
iots at birth		2.1	.9
eaths after birth (Dr. Collins)	within half hour	16	1
" " "	within one hour	19	2
" " "	within six hours	29	6
cute hydrocephalus		1.707	1.340

	MALES.	FEMALES.
Convulsions.....1866 { 1st year	12.348	9.353
2d year	1.668	1.513
" 1868 { 1st year	11.689	8.905
2d year	1.480	1.367
Laryngismus stridulus	34	14
Rachitis.....1866	66	38
" 1868	69	49
Croup.....Churchill	100	82.89
" Trousseau	22	8
" Trousseau	17	5
Whooping cough	=	=
Paralysis	=	=
Chorea	122	300
"	13	16
Rheumatism	=+	=
Rheumatic inflammation of heart	=+	=
Dentition { 1866	2.384	1.909
1868	2.221	1.924
Zymotic diseases	=	=
Diphtheria	++	+
Congenital syphilis	=	=
Anæmia	Rare.	Very frequent.
Chlorosis	"	"
General neurosis and functional derangement	"	"
Simple ulcer of stomach	1	3
Exophthalmic goitre	8	42
Bronchocele	15	105
Insanity	=+	=
Diseases of brain	=	=
Eclampsia	=	=
Spinal diseases	128	49
So-called spinal irritation	Rare.	Frequent.
Cerebro-spinal meningitis	++	+
Diseases of digestive organs	=	=
Intussusception	2	1
Typhlitis	42	8
Acute atrophy of liver	+	++
Gall-stones	2	1
Hypertrophy of heart	2	1
Atrophy	=	=+
Dilatation	+=	=
Diseases of valves	2	1
Angina pectoris	88	8
Vascular engorgements	Rare.	Common.
Gout	Very common.	Rare.
Diabetes mellitus	++	+
Acute disease of respiratory organs	=+	=
Phthisis	=	=+
Cirrhosis of lung	22	16
Urinary organs	2	1
Malignant diseases	1	2½
Dr. Tilt—From 30 to 40 years	6	19
From 40 to 50 years	51	6
From 50 to 60 years		1
Malacosteon	1	3

Insanity in Russia.

The St. Petersburg *Medical Gazette* furnishes the following interesting statistics
the insane in that capital from 1866 to 1875:—

During the first part of this period the number of insane admitted into the
fferent asylums did not exceed 200 a year; the lowest figure being, in 1867, 134;
e highest, in 1866, 195. In 1870 the number reached 262, and, progressing from
ear to year, amounted to 382 in 1874.

This increase may partially be attributed to accidental causes; as, for instance,
e enlargement of some of the asylums, thus providing for the reception of more
atients; but there can be no doubt there has been an actual augmentation of
ental affections, the increase of the number of suicides recorded in St. Petersburg
uring the last periods of this decade confirming this supposition.

Of the total number treated, 2449, 640 were cured (25.5 per cent.), 723 were sent
ome without improvement (28.7 per cent.), 320 promised cures (12.6 per cent.), and
23 died (20.5 per cent.). The number of males was 1412 (50.4 per cent.), females,
137 (44.6 per cent.), the recoveries being greater in the male sex, in the ratio of
1.5 per cent. to 25.9 per cent.

As regards age, the *Gazette* states that the disposition to insanity increased rapidly
rom 20 to 30 years of age; there were 131 patients from 15 to 20, 365 from 20 to
5, 425 from 25 to 30. From 30 to 40 years the number remained stationary, and
hen rapidly decreased.

Statistics of Suicide.

By a return published in the *Révue Médicale*, July 9th, it appears that the suicides
1876 were 5467, of which 4435 occurred in men, and 1032 in women. As is
lways the case, the Department of the Seine furnished by far the largest number,
iz., 915; while no other department, even the most populous, hardly attained 100.
f the 5467 deaths, 2472 took place by hanging; 1514 by drowning; 895 (14 in
omen) by firearms; 407 (216 being women) by charcoal fumes; 154 by precipita-
ion; and 109 by poison, which was usually laudanum; 31 persons killed themselves
y lying on railway lines, 1 man jumped into a furnace, and another inflicted
astration on himself. Among the suicides 1946 were celibates, 151 widowed without
hildren, and 801 married with children. The ages were as follows: Under 16, 29;
om 16 to 21, 195; from 21 to 30, 648; from 30 to 40, 829; from 40 to 50, 1053;
om 50 to 60, 1161; from 60 to 70, 993; from 70 to 80, 528; and above 80, 98.
s to occupation, 1828 are returned as peasants, 1038 as workmen, 228 as servants,
87 as of liberal professions, and 241 as engaged in commerce. Among the most
requent causes, there are returned 1433 from drunkenness, 320 fear of destitution,
33 domestic sorrows, and 798 (277 being women) supposed to be suffering from
ncurable disease.

The Alleged Increase of Insanity.

In the *Journal of Mental Science*, April, 1877, Dr. Henry Maudsley arrives at
the same conclusions with regard to the alleged increase of insanity as he had
previously enunciated six years ago, viz., that there is no satisfactory evidence of an
increase in the proportion of occurring cases of insanity to the population, and no
satisfactory evidence, therefore, of an increased liability to insanity. The apparent

increase is due to: (1) Registration of insane patients having been made gradually more complete; (2) a lower rate of mortality; (3) a lower percentage of recoveries on the admissions; (4) the effect of the Lunacy Act of 1845, which enjoined on counties to build asylums to make provision for their insane poor; (5) the effect of the Lunacy Act of 1853, which prescribed a quarterly return of the pauper lunatics not in asylums by the medical officers of the unions; (6) the enforcement from time to time of the statutory provisions of the Lunacy Acts by the Lunacy Commissioners, whereby numerous cases were brought to light, by prosecutions of those who have received single patients without complying with the proper legal forms; (7) the Act of 1862, which rendered pauper lunatics chargeable upon the common fund of the union of parishes, instead of, as had formerly been the case, upon the particular parishes to which they belonged; (8) the Act of 1864, by which it was enacted that 4*s.* a week of the cost of maintenance of every pauper lunatic in an asylum should be defrayed by the State. The smaller ratio of recoveries after this date was no doubt due to the larger proportion of chronic cases included among the admissions, and may be represented as the measure of the Act of 1874, in transforming aged and broken-down paupers into lunatics.

Dr. Maudsley concludes as follows: It is a question, however, deserving attention, whether the present practice of crowding the insane of all sorts into large asylums, where the interests of life are extinguished, and where anything like individual treatment is well-nigh impracticable, is so much superior to the old system in effecting recoveries as some persons imagine.

II. STATE MEDICINE.

The Medico-Legal Aspects of Wounds of the Generative Organs.

The following extract is from a lecture by Professor Francis Ogston, M.D., of Aberdeen, given in the London *Medical Times and Gazette*, September 29th, 1877:—

Wounds of the organs of generation occasionally lead to fatal hemorrhage, without any of the larger vessels being divided.

A few years ago several remarkable cases occurred in Edinburgh and Glasgow, from wounds in the labia of the female.

In 1826, a person of the name of Pollock was tried at Edinburgh for the murder of his wife, by inflicting two wounds of this sort. Two incisions of the inner side of the right nympha, penetrating to the depth of two inches and a half, were observed on dissection, and the clothes in the vicinity were stained with blood. The woman was intoxicated at the time of receiving these wounds. Pollock was convicted, and would have suffered death, but hung himself before the day of execution.

Two persons were tried in Edinburgh in 1831, for inflicting a wound in the labium of a woman. It was three-quarters of an inch in length, and three inches in depth. She died from loss of blood soon after its infliction. The parties escaped

n a charge of murder from want of proof as to which of them had given the ınd.

Two persons were tried in Glasgow in 1830 and 1831, for causing the deaths of ir wives in this way, and both were convicted and executed.

A case of this kind was tried at Aberdeen in the autumn of 1849, but, from the ossibility of determining which of the two parties tried had inflicted the fatal ınd in the vagina, a verdict was returned of "not proven." In this instance two sions were discovered, one at the left labium, the other at the entrance of the ina at its upper part, and the female (who was pregnant) did not survive above minutes.

n connection with this subject, it is important to notice that at a discussion which k place (December 1, 1849) in the Edinburgh Obstetrical Society, it was sug-ed by the late Sir James Simpson that *the spontaneous origin* of such wounds in *gnant females* is not by any means *impossible*. In support of this view, he refers a case reported to him by Dr. Kyle, of Dundee, where a pregnant woman died m a rupture in one of the labia, communicating with a large vein, produced appar-ly by straining while on the night-stool. On the same occasion, Dr. Thomson pre-ted a case from his own practice, where a woman, six weeks after delivery, had rly perished by hemorrhage from a wound "in the anterior wall of the vagina, the union of its upper with the middle third," large enough "to admit the finger a depth of about half an inch." It was believed by the narrator that the wound d occurred during an intercourse of the woman with her husband,(?) without any olence on his part (*Monthly Journal of Medical Science*, February, 1850).

Be this as it may, it should not be forgotten that it is quite possible that wounds the *labia* may be produced *accidentally*. Several years ago I was called to a ung woman who, while in drink, had fallen upon a chamber-pot and wounded s part, which bled profusely, and required to have the hemorrhage arrested by essure.

A curious anomaly occurred in the case of the woman Harvey, at Cults, in 1854, eviously referred to as an instance of homicidal cut-throat. The assassin, after e girl's death from the extensive and deep wound in the throat, had inflicted a ep, penetrating wound of the vulva, from which, unlike that on the neck, which d bled copiously, only a little bloody serum had oozed. At the trial in the High ourt of Justiciary in Edinburgh, I was asked by the judge (the late Lord Justice lerk Hope) how I could account for this genital wound. The only hypothesis I ould offer was that the assassin had wished it to be supposed that the woman had een violated, which, in case of the discovery leading in this direction, would avert spicion from him, as it was known that the girl was his own concubine, whom would not be supposed he would force.

Influence of the Seasons on Suicide.

The *British and Foreign Medico-Chirurgical Review*, July 1877, says that Mr. Vincent Richards reports that, in 1875, it was brought casually under his notice, by the native doctor, Gopaul Chundra Gangooly, that suicides were of much more frequent occurrence in the subdivision of Goalundo during the hot months than at any other time of the year. On making inquiries he found that such was the case in the subdivision of Kooshteah also.

The following table gives the number of suicides, month by month, for five and four years respectively :—

MONTHS.	GOALUNDO.	KOOSHTEAH.	TOTAL.
January,	3	1	4
February,	6	—	6
March,	8	2	10
April,	9	3	12
May,	12	5	17
June,	16	3	19
July,	11	2	13
August,	7	1	8
September,	6	1	7
October,	4	4	8
November,	3	2	5
December,	2	1	3
Total,	87	25	112

Mr. Richards was so impressed by the above fact that he noticed it in his annual report in 1875. In an article on "Suicide in France," in the *Saturday Review* of a month or two since, he read the following passage, which seems to confirm his view, that the hot season has a marked influence on the suicidal impulse: "Inquiring next into the influence of the seasons, we are prepared to find that it is great, for every one is aware how profoundly the weather affects his own health, spirits, and general enjoyment of life. But we naturally expected that it is in winter, when the days are short and the nights long and cold; when rain and snow and frost intensify the sufferings of the poor; when employment is scarcest, and necessities most pressing, and when out-of-door life is not possible to many, that suicide should be most prevalent. The very contrary is, nevertheless, the case. The proportion of the suicides in the first quarter of the year is about 22.1 per cent., in the second quarter 30.8 per cent., in the third 27.1 per cent., and in the last only 20 per cent. Thus, in the six comparatively warm months, about 58 per cent. of all the suicides occur; May, June, and July exceed any other three months, June standing at the head of all. The mania increases, in fact, up to midsummer, and then somewhat more rapidly decreases, December having the fewest suicides, as June has the most." Through the courtesy of Dr. Mountain, Civil Medical officer of Bancoorah, Mr. Richards obtained the following details regarding deaths from suicide in that district :—

MONTHS.	NO. OF SUICIDES.	MONTHS.	NO. OF SUICIDES.
January,	3	July,	7
February,	2	August,	2
March,	3	September,	3
April,	6	October,	5
May,	10	November,	3
June,	10	December,	3
Total,			57

If we compare the above data we shall find that the months of March, April, May, June, and July, are those in which the very great majority of suicides occur. Thus, in Goalundo and Kooshteah, during these months, 63.39 per cent. of the total number occurred, and in Bancoorah 63.15 per cent. Now, as to the reason, the

Saturday Review says: "What the reason of this should be we cannot even conjecture. M. de Foville puts forward a fanciful suggestion that, as the season of flowers is the most delightful to the happy, it aggravates the wretchedness of the miserable." Apart from the "fanciful" nature of the suggestion, M. de Foville evidently presupposes that the majority of suicides are the outcome of deliberation consequent on mental despondency. If such were the case, we should expect to find suicides more common in the cold weather, when, as the *Saturday Review* says, "the days are short and the nights long and cold; when rain and snow and frost intensify the sufferings of the poor; when employment is scarcest, and necessities are most pressing," etc. But the very great majority of suicides are committed, no matter what the immediate cause may be, during a state of mental excitement; in fact, impulsively, when the nerves are, so to speak, strung to the highest pitch of irritability; even those of the most phlegmatic temperament must have experienced the comparatively irritating effect of the hot weather months. The reason, therefore, that impulsive suicide—as distinct from premeditated—is so greatly influenced by the hot season in India, seems pretty obvious. Moreover, when we bear in mind what impulsive, nervous creatures natives are, especially women, who contribute so largely to the crime in this country, we shall at once understand how it is that this influence is so much more pronounced in their case than in the case of Europeans. Mr. Richards has no doubt that an examination of the returns of suicide in the United Kingdom would elicit the fact that this seasonal influence is less marked among Englishmen, and, perhaps, still less so among Scotchmen. The subject is pregnant with interest, and would repay investigation by any one who had the necessary materials at his command. He merely draws attention to it, in the hope that some one with better opportunities will do it justice.

Drs. Sandiford and Davis furnished Mr. Richards with the following information pertaining to the districts of Bogra and Pubna, respectively: Of the 105 suicides which came to the notice of the medical officer in six years in the district of Bogra, 15 (14.29 per cent.) occurred in the first quarter of the year, 32 (30.48 per cent.) in the second quarter, 28 (26.66 per cent.) in the third, and 30 (28.57 per cent.) in the fourth. Of the 211 suicides which came to the notice of the medical officer in ten years in the district of Pubna, 48 (22.75 per cent.) occurred in the first quarter of the year, 64 (30.33 per cent.) in the second quarter, 47 (22.28 per cent.) in the third, and 52 (24.64 per cent.) in the last. In the former district most suicides were reported to have occurred in the months of June, July, and October, and in the latter, during May, June, and December. It will be observed that, notwithstanding the variation in respect to October and December, the statement that suicides are more frequent in the hot months than in the cold, is again confirmed by the above data, though in a minor degree, apparently, in the district of Pubna. Tables showing the daily range of temperature and reported suicides in each district would be very interesting. The temperature here has become suddenly higher during the past two or three days, and two suicides have been reported in that time, whereas there had been only two cases during the previous three months, and none for about a month and a half.

The Exciting Cause of Typhoid Fever.

This was the subject of a paper presented to the Parisian Academy by M. JULES GUÉRIN. His conclusions were as follows:—

1. The fecal matters of typhoid patients contain, from the time of their leaving

the body, a toxic principle capable of producing death in one class of animals within a period varying from some hours to a few days. 2. This property of fecal matter is common to other excrementitious products of typhoid patients, such as urine, blood, mesenteric liquid, and the detritus of the mesenteric glands and of the ulcerated mucous membrane. 3. These matters retain their toxic properties in great part for some months after their removal from the body. 4. The fecal matters of healthy persons or of persons suffering from other diseases do not contain the toxic principle which appears to be preserved by the excrementitious products of typhoid patients.

M. JACCOUD discussed the following question :—

Are fecal matters noxious of themselves, without any distinction, as Dr. Murchison thinks, whatever be their quality and origin? This opinion, he maintained, cannot hold in presence of the thousands of negative facts which every year and in all countries demonstrate the pathogenic inertia of fecal matters, accumulated under the most unfavorable conditions. To be typhogenic, they must differ in some particular from ordinary fecal matters. This peculiarity is supplied by the typhoid poison. As to the origin of this poison, it is generally admitted that it only exists in excreta, so far as it has been introduced into them by the dejections of a patient affected by typhoid fever. Then, under the influence of the addition of these specific matters, modification very similar to fermentation is effected by propagation, and the entire fecal mass, which has received the morbid products, acquires the morbific power more or less quickly. Unfortunately this opinion, so attractive in its simplicity, cannot be reconciled with the whole series of facts. In some of them the first typhoid case is absolutely wanting. Out of one hundred and six cases referred to and examined from this aspect with the necessary exactness, the excreta were present in thirty-six, but in twenty-four they were positively absent. How, then, should we interpret these twenty-four cases in which matters, up to that time inert, suddenly became noxious? Either they underwent some special change whence resulted the typhoid poison, or the poison was brought from a distance by atmospheric currents, unless it be admitted that it is the living organism which has undergone the change necessary for the development of typhus fever.

IV. EPIDEMIOLOGY.

Epidemics of Trichina.

Professor REINHARD, of Leipzig, in the *Archiv der Heilkunde*, 1877, Nos. 3 and 4, mentions that in Saxony, in sixteen years, from 1860 to 1876, there were thirteen trichina epidemics. The number of sick persons was 1266, of whom 19, or 1.58 per cent., died. But very few were infected through eating raw meat; mostly by eating hard smoked sausages and other varieties of sausages; over seven-eighths of all poisoned were infected through eating sausages; very few cases can be traced to the eating of ham. Out of the nineteen deaths, three were infected through eating raw meat, two by hard smoked sausages, eight by eating common sausages, and two by eating ham. The epidemics were confined almost entirely to large cities, and to the thickly populated districts. The source of the infection was traced

Twenty-nine times to butchers, and only five times to meat raised for home co
tion. The number infected by one trichinosed hog is very small. It is dete
that one medium hog furnishes meat for from one hundred and forty to two h
people; out of this number, on the average, not one-fourth are infected, and
times not more than twelve. The tax-list showed that in these sixteen yea
6,3960,000 hogs were slaughtered in Saxony. Out of this number thirty-nin
rise to epidemics, or one in 180,000 hogs. But observations disprove that
nosis is so scarce in hogs. Microscopical observations were made in many p
Saxony. In Ebenbach 2034 hogs were examined, and one was found to be su
from trichinosis. In Dresden, Dr. Meissner, veterinary surgeon, examined
hogs, and found four suffering from trichinosis, or one in 839. The most r
examinations we have come from Brunswick. Dr. Uhde examined 757,716
and found ninety five infected, or one in 8000. Taking the average of
presented, we find one hog in 7706 suffering from trichinosis. This woul
for Saxony, with her 6,600,000 slaughtered hogs, about 938 trichinosed
Taking the number of epidemics into consideration, we have four in one hu
fected hogs giving rise to such a visitation. The author says: "Many belie
every infected hog detected and condemned so many lives have been sa
ber so much suffering prevented. But this is far from the truth, as the
atistics have shown." Neither does the author think that microscopical obser
n be carried out in large cities with any degree of accuracy whatever.
idemics were caused by hogs that had passed microscopical examinati
aminations having been made by men whose ability to perform them could
oubted.

Is Pneumonia an Infectious Disease?

In the last part of the seventeenth volume of Virchow's *Archiv*, Dr. Ber
HEIDENHAIN discusses the question, which has lately received much at
whether pneumonia is to be regarded as an infectious disease or not. A
conclusion would undoubtedly be arrived at if it could be shown that a mo
lesion was capable of exciting an attack of true croupous pneumonia, and Dr
hain set himself to experiment on this point in the Pathological Institute of
under the guidance of Dr. Cohnheim. After some consideration the
method of affecting the lungs appeared to be to make the animal breath
and with this object a cannula was introduced into the trachea, connec
tube, a portion of which could be heated at will. The experiments lasted
and thirty or more minutes. In the course of three, five, or seven days
was killed, but in all instances the lungs were found to be perfectly h
other instances the animals were made to breathe ice cold air from a
passed through a refrigerator. The effects were here, however, also
was any pneumonic inflammation established when the animal breathed a
heated and cooled atmosphere alternately for periods of about a quart
each. Some explanation of the absence of all inflammatory reaction
parts of the lungs is gained from the fact, which he ascertained by
arrangement of thermometers, that dry air, if heated rapidly, part
or, if cooled rapidly, acquires the temperature of the body in
trachea, so that the deeper parts of the lungs are never exposed
cold air, however high or low, within, of course, certain limits,
the air may be, provided it is dry when inspired, a point of

pathology. If the air be moist to begin with, the results are different, for then, if breathed at a temperature above 130° Fahr., the lungs begin to be affected, the condition established resembling that of catarrhal pneumonia. The vapor of acetic acid produced effects similar to those of hot moist air. Heidenhain found it to be impossible to experiment with other gases, such as chlorine, for either they proved rapidly fatal, or, if so diluted as to be without influence on the general economy, the lungs also remained intact.

Heidenhain's researches, therefore, lead him to the conclusion that true croupous pneumonia cannot be excited by irritation of the respiratory passages. If, he says, we are to regard as essential features of croupous pneumonia that one lobe of a lung or a part of a lobe (lobar pneumonia) should be affected throughout its whole substance, that there should be coincidently pleurisy, that the trachea and bronchi should remain intact, or at least be only secondarily affected, then he has been unable in any of his experiments to establish that disease. In all cases where any disease at all was produced, the trachea and bronchi were primarily and the lungs were secondarily affected, and the affection of the lung presented in all cases essentially similar characters. There were more or less numerous small foci of disease, which corresponded with what in human pathology would be called catarrhal pneumonia or broncho-pneumonia. Pleurisy was invariably absent. The general result, therefore, arrived at by Heidenhain is rather in favor of the existence of some specific agent as the cause of pneumonia.

The Infection of Small-Pox.

In an editorial article in the *British Medical Journal*, May, 1877, the author says:—

We state positively that it is possible, and extremely probable, for patients who have certainly recovered from their illness, and who have even lost their scabs, to be centres from which fresh cases may originate, either within two weeks or even months after such patients have been discharged as "cured." The patient's recovery from the acute stage of his disease is, no doubt, complete at the time of his discharge from the special hospital. As a rule, he is thought fit to go about in public when all visible scabs have fallen off; but we think that if this too common and, in our opinion, dangerous practice be carried out, it will be one attended by no inconsiderable risk to the public at large. After all scabs have disappeared from the face, the arms, and possibly the skin of the hands, abortive or dried-up pocks can still be detected under the thick skin of the heel and ball of the great toe, and probably latest of all on the outer edge of the foot; and moreover, after all scabs have fallen from the skin, there is still a desquamation which may last for many days and which does carry infection.

We believe this danger from deep-seated dried-up pocks to be less in severe than in mild or abortive cases, since in severe cases the skin more readily peels off, and by the end of six weeks or two months the skin of the sole of a patient who has had a severe attack, if examined, will be found quite sound. On the contrary, in mild cases, or in cases in which the eruption has been abundant, but aborted, the skin of the sole will be found at the end of this time (six weeks) studded with small brown (and occasionally yellow) spots; or, if the skin over the majority of these has been broken and the underlying brown spot picked out, there will be much ragged skin coexisting with several almost invisible and still unbroken brown spots (dried-up pocks), which, being specific morbid products, are presumably capable of giving rise

o the disease. There is yet another situation in which pocks are found long after he supposed recovery, viz., *under the nails.* This is, of course, most usually seen in severe cases, because they are longest under observation; but it is by no means unusual to see brown spots through the nails even in mild cases, if they be looked for. If the pocks under the nails be fairly numerous, and especially if situated at the root, their presence is rapidly manifested by the nail coming off. If they be few in number, their presence will be shown by the destruction of a small rounded portion of the nail near the lunula, or by their being visible as brown spots through the nail. Can the presence of pocks in this situation account for solitary cases breaking out after the disease is supposed to have disappeared?

It is a recognized rule in scarlet fever that the patient should not be considered "cured" until his skin is quite sound. Should not the same rule apply to small-pox? and is it not equally important that the desquamation which follows the scabs, and that from the nails, palms of the hands, and soles of the feet, should be complete before a small-pox patient be discharged from hospital?

The Glandular Theory of Contagion.

The *Medical Examiner*, November 1st, 1877, contains a review of Dr. B. W. RICHARDSON'S theory of contagion, as follows:—

Dr. Richardson's theory is that all the specific communicable diseases are the outcome of vitiated glandular functions; that as each gland in health secretes some organic product—as the gastric secretion contains pepsine, the salivary secretion ptyaline—so, under disordered conditions, the various secretions contain *septine*, the organic base of all the *septinous* or specific communicable diseases. He meets the difficulty of the differences between the different septinous diseases, produced by a common basic poison, by comparing them with the normal secretions, which exhibit differences in function, although presenting a general similitude of construction as regards their organic basis. This modification of the secretions, this transition from a physiological to a pathological condition, which entails all the characteristic phenomena of the specific fevers and their allies, may be brought about, he says, by transmission of the poison from one person to another, or may arise *de novo* in an individual. Dr. Richardson sees the type of the organic poisons, the contagium of the communicable diseases, in the poison of a venomous snake, and exemplifies the morbid process in this class of diseases by a case of nasal catarrh.

In the first place, we would remark that Dr. Richardson does not seem to distinguish between the septic, or, if he prefers it, the *septinous* diseases, and the specific fevers or diseases which are confined to one or a few species. This is a most important point, as Dr. Richardson bases many of his arguments on the results of experiments made with the contagium of septicæmia. What is true of this class of disease does not necessarily hold good of the specific fevers. The septic diseases, so far as our present knowledge extends, are propagated by a virus capable of communicating more than one form of disease; whereas the contagium of the fevers is more specific in its action. Each fever breeds true. The occurrence of a septic disease conveys no immunity from another attack; whereas the incidence of one of the specific fevers, with rare exceptions, protects the individual from a recurrence of the same disease. And, moreover, whilst admitting the existence of an organic basic poison in septic diseases, it is well to remark, as Dr. Roberts has recently done, that this may be the result of a kind of fermentative action set up by organisms.

That the various glandular secretions contain the virus in many of the diseases

under discussion is undoubted. In some of the spreading diseases the contagium is clearly limited to a particular secretion. But this fact does not prove that the virus of all communicable diseases is simply a modification of glandular secretions. In his difficulty of finding a gland for each disease Dr. Richardson is compelled to group, most illogically, and for his argument fatally, the secreting glands containing a specific ferment, and all the various fluids and secretions of the body. The conclusions of Dr. Richardson were arrived at after some experiments with the virus of septicæmia, taken from the large glandular sac of the peritoneum. The experiment does not prove anything except that the exudation into the peritoneum, along with the exudation into any tissue of the body, is infective, and that this virus, which resembles an organic poison of alkaloid, can be dried, and even be made to combine with acids to form salts. Much more is required to be known of the mode of formation of this virulent poison, which Dr. Richardson calls *septine*, and Dr. Burdon-Sanderson *pyrogen*, before any conclusions can be drawn with regard to it. As we have said, Dr. Richardson takes snake poison as the type of the organic poisons which produce communicable diseases. To our mind the analogy between the poison of the snake and the virus of a fever is a very feeble one. The former is poisonous in proportion to the quantity administered, and does not multiply or increase when introduced into an individual; whilst the reverse of these two qualities is absolutely characteristic of the virus of a specific communicable disease. There are some special qualifications which have to be considered in reference to the above statement, that the effect of a specific virus is irrespective of the dose administered. The tissues of the body have a certain resistance against such seeds of disease, but if the latter once take root a drachm will ultimately, owing to self-multiplication, do the same work as a pound. A speck of small-pox matter at the end of a lancet, if it gains admission into an individual in which it can propagate, will as surely infect the whole system as though a cubic centimétre of small-pox matter were used. In the same way, and for the same cause, a teaspoonful of yeast will as effectually cause the complete fermentation of an infusion of malt as a teacupful, but it will take a little longer, and only a little longer, to accomplish this result. The catalytic changes produced by the organic basis of the normal secretions differ from the action of *contagium* in this, that their action is limited, not by the amount of material to be acted on, but by the quantity or dose of the catalytic agent. Thus ptyaline can only convert a definite quantity of starch into dextrine and grape-sugar; pepsine can only transform a limited quantity of albumen into peptone.

An Epidemic of Lead Colic.

At the sitting of the Society of Public Medicine, Paris, July 26th, 1877, Dr. Du Camp furnished a most interesting paper on sixty-five cases of lead poisoning observed by himself in Paris. In the presence of such a large number of sufferers with the special symptoms of lead poisoning, occurring in the same quarter, Dr. Du Camp directed his attention to the cause of this outbreak, taking into consideration the causes common to all his patients. He could not incriminate the wine nor the provisions, but a baker's family were also sufferers, and all the patients with the exception of two obtained their bread from this baker. These two, though they did not purchase their bread direct from this bakery, yet took their food at an eating-house supplied by it. The inquiry seemed thus limited, and the cause sought in the bakery in question. The town's water was used, but was free from all suspicion, so

Dr. Du Camp directed his attention to another point, in consequence of a fact communicated to him by Professor Gubler.

Some years ago M. Gubler had noticed many cases of lead poisoning at a pastry-cook's who employed old wood painted with *white lead* to heat his fires. After a laborious inquiry Dr. Du Camp found that the same cause operated in the present instance. The baker used old wood covered with *white lead*, and the fire set free *oxide of lead.*

Professor Carnot found lead in the bread. The manner in which the lead was deposited on the bread gave rise to a very extraordinary fact. Among the patients was a lady and her maid; the maid having bad teeth, her mistress gave her the crumb, taking herself the crust; in consequence of this unequal distribution the maid escaped, whilst her mistress was poisoned.

V. ANIMAL AND VEGETABLE PARASITES.

On Chinese Hæmatozoa.

Dr. PATRICK MANSON writes to the *Medical Times and Gazette*, London, November 16th, 1877, upon this subject, as follows :—

Allusion has often been made to a condition known at Amoy as "worms in the heart," to which the European dog in China is peculiarly liable. Any one who has had much acquaintance with dogs in China must be aware of their liability to sudden and apparently unaccountable death, and the medical practitioner is often asked to perform a post-mortem examination with the view of clearing up or confirming the suspicion of poisoning which is so commonly entertained in such cases. Ten chances to one the cause of death is found to be plugging of the pulmonary artery, or mechanical interference with the action of the valve of the heart, by a mass of filariæ occupying the artery and cavities of the right side. I have had many opportunities of seeing this affection, and I am aware that a similar disease is known in America, France, and Italy, and probably elsewhere, and that the "worm" has been more or less carefully described by various authors.

Besides the usual and well-known external pests, there is a large number of different parasites infesting both foreign and Chinese dogs. I am familiar with at least five species occupying the alimentary canal, viz., two kinds of tenia, a thread-worm inhabiting the small intestine, the two round worms like the human lumbricus. In addition to these the heart-worm, variously named Filaria canis cordis or Filaria immitis, and a new species, not hitherto described as existing in the dog in China, the Filaria sanguinolenta. The latter was discovered by Dr. Lewis in the pariah dog of Calcutta, and most of the observations I have been able to confirm.

Diseases Produced by Filaria Immitis.—One must be careful not to attribute to this cause the death of every dog in whose heart worms are found. We have seen that nearly two-thirds of all dogs are thus affected, and that for the most part host and parasite are apparently in good health. But I think there are at least two forms of disease fairly attributable to Filaria immitis.

The position the worm occupies in the circulation is about the safest so large and fertile an animal could select. Were the left side of the heart its habitat, the consequences to the host would surely be much more formidable; for in such case, the

animal, escaping from the ventricle (as is its habit), would pass into some small but important artery, and all the evils of embolism would follow. Or even if the unhatched eggs were to escape in any number, as I suppose they sometimes do, there would be the same danger from capillary plugging in the brain, spinal cord, and elsewhere. The capillaries of the lungs, however, act as a filter, and all products of generation too large to pass capillaries—all the results of death, if such a thing occurs, and the wandering parasite itself, should he, as he so frequently does, leave the heart—all these are arrested there; the free embryo, of a diameter smaller than a blood corpuscle, too small to do harm by its size, alone passes through. As a consequence of this filtration, the lungs may themselves be injured; and I put down tubercle, or tuberculoid disease, as an occasional result of this process. I have met with an appearance closely resembling miliary tuberculosis in the lungs of filaria-stricken dogs, and in many cases where no distinct tubercular appearance exists, the lungs feel, when squeezed between the fingers, as if they contained numerous minute particles of gravel.

The most frequent and important effects, however, are those that may be attributed purely to the mechanical interference with the valves of the heart, and the capacity of the pulmonary artery and branches.

A New Form of Parasite.

Under the name of anguillula intestinalis, M. Bavay describes (*Arch. de Médecine Navale*, July, 1877) a new form of worm found in the intestines of five cases of the diarrhœa of Cochin China. It differs from the anguillula stercoralis in some important particulars, though often found in association with it. The adult female measures about one-twelfth of an inch in length, and one seven-hundredth of an inch in thickness; it is nearly three times the average length of the anguillula stercoralis. The body, narrowed at the anterior extremity, ends suddenly, posteriorly, by a conical tail with a rounded point. The surface is very finely and regularly striated in a transverse direction throughout its whole length. The mouth presents simply three minute lips opening into a cylindrical œsophagus, which ends in the upper third of its length in a straight intestine, the anus being seen as a transverse slit near the base of the tail. The ovary occupies the middle of the body, the vulva is situated in the posterior third, and in the neighborhood of the uterus contains five or six elongated ova. All the specimens (about two hundred) examined by M. Bavay were either female or unprovided with sexual organs. He believes that the parasitic form may be hermaphrodite, with female appearance. The worms were found abundantly in the duodenum, few in the jejunum, and never in the ileum. In one case they were abundant in the contents of the stomach. M. Bavay states that out of six cases in which these parasites were found five ended fatally. He believes, however, that it would be rash to draw any grave conclusion from this fact, though it is a point which deserves further investigation.

CLINICAL MEDICINE.

I. GENERAL AND CONSTITUTIONAL DISEASES.

Atmospheric Influences Controlling Inebriety.

Dr. T. D. CROTHERS, Superintendent of Walnut Hill, Hartford, Conn., writes to the *Quarterly Journal of Inebriety*, September, 1877, upon this subject, as follows:—

At the Philadelphia meeting of the Association for the Cure of Inebriates, I reported a curious fact, that periods of great restlessness and irritability, so common among inebriates under treatment, seemed to follow the rapid fluctuations of the barometer, and be particularly marked in low areas of atmospheric depression.

At that time my observations had been confined to a short period, and the statement made seemed to be indicated, although not confirmed, by sufficient evidence. I propose now to state some of the observations which have been noted, as a confirmation of the above statement. All persons who have charge of inebriates, and note the progress of the cases from day to day, are surprised at the exceedingly variable character of the disorder generally manifested in extremes of physical and mental debility; noted as either abject invalids, craving for medicine and help, or ignoring all efforts and boasting of conscious strength, accompanied with periods of restlessness and excitement from trivial causes, which come and go rapidly.

These paroxysms seem to appear at all times, and pervade all classes of inebriates, from the patient lately arrived, and not over the immediate effects of alcohol, to those who have been for months residents of the asylum. My attention was called to the similarity of these paroxysms, and their frequent returns, without any apparent cause.

This led me to note down carefully all the symptoms, which may be described, in a general way, as follows: Without premonition or apparent cause, the patient becomes restless, and exhibits a tendency to boisterous emotional displays. Patients will walk up and down the halls or grounds, or desire to go away on long tramps, without any particular purpose, and laugh loudly and immoderately at trivial things; show great irritability and anger at insignificant objects, or manifest an extreme sensitiveness and complain bitterly of their conditions and surroundings. The appetite seems to decline, and a half-defined stage of general depression comes on, attended with an intense longing for medicines of any kind; various neuralgic affections appear, accompanied with pains of all kinds, headaches, dyspepsia, and a sense of weight and fullness. A degree of recklessness and abandon is manifest, rules and healthy restraint are disregarded, and keen pleasure is apparent in detailing drinking scenes, etc.

In appearance they betray agitation and general nervousness; often the flashing eye, and the tremulous lips and muscular movements, betoken the coming storm.

The mind is free from delusions, although intensely sensitive, and likely to explode in outbursts of indignation, or appeals of generosity, flying from one extreme to another. The management of such cases during these paroxysms is always difficult, requiring rare tact and judgment. The care and attention must be increased, and not unfrequently all the medical and hygienic measures are taxed to their utmost. Such attacks usually last from twelve to thirty hours, then subside. Frequently these paroxysms end in drunkenness from liquor introduced into the asylums with the greatest adroitness and cunning.

After recording a number of these instances, and trying to eliminate all possible complications and coincidents, I was surprised to notice that they seemed to occur just before or during a storm.

Turning to our barometer, whose readings are recorded three times a day, I found that the time of these paroxysms corresponded to the sudden fluctuations of the atmosphere, particularly a falling barometer and low area of pressure. I directed the observer to note with care the sudden changes and low area of pressure, with temperature, winds, etc., while I recorded carefully all the circumstances and conditions that seemed to enter into these paroxysms, each keeping his record distinct, and not under the observation of the other.

Having recorded twenty instances or paroxysms, similar to that described above, extending over seven months, a comparison of records was made, showing that fourteen of these instances occurred at the time the barometer indicated a very low area of pressure, nearly or about 28.30 inches.

In the six remaining instances, there was a steady or changing barometer, the mercury in two cases being on the point of fluctuating either way. In six cases, this low barometer continued eighteen or twenty hours, and in the other cases a much less time. The length of the paroxysm seemed to correspond to this long-continued pressure; also cloudy and threatening storm was marked at some of the times recorded. Paroxysm number twelve, in my note book, was noted as coming on in the afternoon, and attended with unusual depression, extending to nearly every patient, and manifest in a very marked way, clearing up next day.

The record of the barometer at this time indicated a rapid fall and an unexpected low pressure, with an almost equally sudden rise. The range of the barometer was below 28 inches, and rose within eighteen hours to 29.26.

It was found that from four to six hours after the barometer began to fall, or reached its lowest area, these paroxysms commenced. The records of the temperature at these times, and the direction of the winds, were not in any way significant. On two occasions a severe thunder storm followed, which was noted in my records by an unusual degree of fault-finding and general disaffection among the patients. I regret that I cannot give a diagram showing the correspondence between these two records, but trust to continue these observations in the future with results more satisfactory. These statements are not presented as conclusive in any way, but rather as hints and suggestions of the possibilities awaiting further investigations.

In an inebriate asylum it is difficult to eliminate all the possible causes which might produce these so-called paroxysms, and limit them to atmospheric influence alone. Inebriates, as a class, are extremely sensitive to all changes of surroundings, and likely to become greatly agitated from the most trifling causes.

The arrival of a patient, very much intoxicated, at the asylum, particularly if he is allowed to stand around and be seen, creates more or less excitement that is dangerous to others, and often awakens diseased cravings for liquor that are uncon-

trollable. At certain times patients will recognize their ill feelings as arising from perverted nutrient desires, and reason clearly about it, seeking relief with earnestness. On other occasions they become secretive and reserved in their manner, exhibiting morbid excitement and a want of principle that is abject.

The exercise of wholesome discipline at times creates much sympathetic excitement, and the absence of restraint necessary to check the precipitation of some cases has the same affect. To eliminate these and other causes, and indicate how far the atmospheric influences control the organism, will require extended observation in many asylums. I have noted several cases where some obscure conditions of the atmosphere, either physical or electrical, seemed to be the exciting cause of inebriety.

In one instance the salt air of the seashore raised intolerable cravings for liquor; in another, a mountain region and the solitude of the woods, etc.

The inference which I have drawn from these and other observations is that conditions of atmospheric pressure do often exercise a powerful influence over inebriety, and that frequently a change of climate is followed by a lessened desire for stimulants; also, it is not improbable that we shall find in the future that certain temperatures, climates, and conditions of the atmosphere are favorable to the continuation of inebriety, or to the rapid decline, and final dying away of the disorder.

The influences of climate, changing conditions of weather, winds, fogs, dampness, cold, heat, dense or rarefied air, rivers, oceans, soil, and contour of the land, act either to raise or lower the standard of healthy activity; and the reaction of these changes, manifest in the nutrient wants, when perverted, constitute the starting point of inebriety.

Scarlatina and Colt Distemper.

On this subject Dr. H. PETERS has written an article, given in the Toledo *Medical and Surgical Journal*, August, 1877. He says:—

I desire to bring before you scarlatina and colt distemper, and endeavor to show a close analogy between them, and how the latter disease may be made a protection and modifier of the former. In colt distemper you will find fever, sore throat, and the rash, which may be seen on the tongue and in the nostrils. Its duration is about the same as scarlet fever, with frequently one or another of the sequels. It is emphat cally a contagious disease, horses taking it when passing each other in the streets or on the roads, or by being put in the stable a month after it was occupied by a horse having the disease. It frequently prevails as an epidemic. It is also a disease of colts, the majority of them having it before seven years old. All this is like scarlatina in the child.

Now, if it be true that this disease in the horse be akin to scarlatina in man, and if it be also true that the law of transmission of a disease from the lower to the higher animal organization be such as to produce a similar one, but mild, one that will protect and modify the more severe disease in man, as is the case with vaccination in small-pox, then from this same law may not the colt distemper in the same way be made a modifier and a protection from scarlatina? Then will the hearts of mothers be made to rejoice and thousands of precious lives saved to the world, and another great scourge be swept from the face of the earth.

Now it seems to me that this ought to be thoroughly tried, and it may be done by taking a few drops of blood from a colt having the distemper, and with a hypodermic syringe inject it under the skin, or with a lance take some matter from the

nostrils and put it in the arm, as in vaccination. Also it may be tried by taking blood from a child with scarlet fever, and injecting it into a colt and see the results. Many other ways may be tried, but this will suffice for this time, hoping that some one will have an opportunity to try some experiments in this direction, and you may hear from me more in this connection some other time.

A Case of Glanders in the Human Subject.

Dr. WILLIAM JONES reports a case of this kind in the *Pacific Medical Journal*, June, 1877. He says:—

The recent death of a man from glanders or farcy (identical infections) ought to impress the people with the necessity of giving a wide berth to horses infected with that disease; and the inefficiency of all therapeutical means suggests the expediency of efficacious prophylactic measures for the compulsory destruction of the infected animals. The occult and insidious nature of the disease, especially the chronic variety, and the difficulty of diagnosis in the incipient and early stages of its progress, attach peculiar importance and value to every pathognomonic symptom.

I was called on the 15th instant to see Martin Egan, aged thirty-six years, residing on Fifteenth street, occupation in a flour mill, subject to slight bronchial affection from inhalation of dust, but always healthy until the middle of last February, when he was taken ill with fever and rheumatism. For this he was treated until he was seized with diphtheria, as was supposed, a few days before the 15th, previous to which no suspicion of the nature of the malady had occurred to any one, his wife and children holding uninterrupted intercourse, the latter frequently playing with him and kissing him, until his throat got sore.

I was informed that he had severe pains in the joints and muscles, and that lumps or bunches were noticed in the middle of the extensor muscles of the thighs and arms, but that they had disappeared; that the pains had ceased; that he was considered convalescent, being able to sit up and walk around a little. His appearance denoted extreme cachexia; his muscles were exhausted and flaccid, and the slightest attempt at voluntary motion threw them into uncontrollable agitation and tremor. There was constant subsultus tendinum. No symptoms of abscesses anywhere. Erysipelatous inflammation extended over the bridge of the nose to the malar bones, with infiltration and swelling, especially on the right side. The nares were completely filled with a foul, crusty deposit, the partial removal of which was followed by discharge of a yellowish, curdy, tuberculous matter. The lips were covered with dry blisters, and the gums with a deposit of a sooty color; the tongue with a thick, dry, brown fur. The mucous membrane of the mouth and fauces was dry and parched; in some parts eroded, in others, especially on the roof of mouth and isthmus of the fauces, covered with a ragged, grayish-colored coating. But the most remarkable of all was the appearance of the soft palate, which was in a dry, gangrenous condition, as if the actual cautery had just been applied, the surrounding parts being of livid red. There was neither sanious discharge, secretions, nor appearance of sloughing. Deglutition was but slightly impeded. Slight bronchial râles were heard over the lungs, which were sound with that exception. The temperature was normal, his respirations 25 per minute, his pulse feeble and 130. There was decided somnolency, though his mental faculties were unimpaired. The submaxillary glands about the size of peas, hard as bone, and painful on pressure. There was slight enlargement but evident induration of the glands of the lymphatic system

everywhere; no eruptions on the body, but in various places over the shoulders, chest, and extremities, I distinctly felt round nodules about the size of small buttons, apparently rooted in the muscular structure and involving in some places the subcutaneous cellular tissue. The skin covering them became afterward livid and putrescent.

On the 19th his pulse was not discernible. The cartilaginous portion of the nose was completely gangrened. He lapsed into a comatose condition, in which he lingered for three days, until death released him on the 22d. The foregoing symptoms convinced me at first that it was not a case of diphtheria or ordinary pyemia, and inquiry as to the possibility of other infections disclosed the fact that he had doctored his horse for glanders or farcy during the winter months, and a short time before he was taken sick in February.

A Case of Glanders.

The following instructive case is extracted from the *Medical Times and Gazette*, July 7th, 1877. It was in the St. Mary's Hospital, London, under the care of Mr. H. WALTON:—

J. E., aged forty-eight, a buyer and seller of horses, of a low class, of very dissolute habits, and a drunkard. Six days before applying to the hospital, and while he was feeling very feeble, bullæ appeared on his face, trunk and limbs. His symptoms on admission were: bullæ of a size varying in diameter from a quarter to two inches and a half, filled with clear serum; chemosis of both conjunctivæ; purulent discharge from both nostrils; cough, with thick, stringy expectoration; general prostration.

Mr. Haynes Walton saw the patient at once, and pronounced the case to be one of acute glanders. He said it was the fourth that had come under his care. He ordered iodide of iron, full diet with brandy, and chlorine lotion to be freely used to the mouth and nostrils, and frequent fomentation to the eyes. The bullæ enlarged, the fluid within them became turbid, and they burst at different periods and exposed superficial cutaneous ulceration, from which exuded foul secretion. There were profuse putrid sweats. The purulent ophthalmia increased; the nasal discharge became excessive, bloody, and very offensive. The cough was more severe, and the expectoration was now very fetid, and highly colored with blood. Fresh but smaller bullæ formed, and followed the course of the larger ones. Prostration was excessive; pulse 136; temperature 103°; yet the appetite was never lost. Auscultation of the chest gave the physical signs of bronchitis, with consolidation of the lower part of the left lung. The patient was sent to an isolation ward. He required increasing attention, in order to be kept clean. General improvement began with lowering of the temperature and reduction in the pulse, and one by one the symptoms declined. In three weeks from admission the patient returned to the general ward. In a fortnight after, he left the hospital well. The day-nurse who attended him in the isolation ward took the infection, but the symptoms did not go beyond fever and sloughing of tonsils.

In commenting on the case, Mr. Walton made the following clinical remarks:—The patient had, no doubt, been infected from the horse, although he could not remember any details connected with it. Glanders and farcy are identical in their origin, but have different symptoms, the latter showing its acutest local affections chiefly in the lymphatic system. In man, as in the horse, glanders may be acute or

chronic. Here was the acute type. There were the bullæ, fever, marked debility, fetid discharge from the nares, with implication of the respiratory mucous membrane, but yet the attack was not of the most severe kind, for gangrene did not succeed to the bullæ; nor were there abscesses in the neighborhood of the joints, nor ulceration in any of the diseased mucous tracts, nor nephritis, nor death, which is the rule. The treatment was adapted on the principle of supporting the depressed powers. There must necessarily be much depression when the skin and so much of the mucous tract are diverted from their natural functions and suffer such morbid changes. Many attempts have been made to discover a specific for human glanders, without effect, however.

A Case of Bots in a Human Subject.

Dr. J. J. KNOTT, of Atlanta, Georgia, reports in the Louisville *Medical News*, July 14th, 1877, the following case:—

In the early part of the spring of 1873 I was called to see John Wooten, a hostler in the employ of Messrs. B. W. & J. Wooten, of this place. He was living, at the time I was called to see him, seven miles in the country. On arriving at his place of residence, I found out the following particulars of his case and condition: six weeks before I saw him he had been treated for cerebro-spinal meningitis by Dr. P., a physician of this city. After he commenced to convalesce Dr. P. advised the patient to go into the country until his health was restored. He had been in the country several weeks before I saw him, without any improvement in his condition; in fact, he informed me that he had been getting worse every day. He was very pale and anæmic; pulse 130; bowels constipated; suffered with cephalalgia continuously; tongue heavily coated; appetite indifferent, with inability to sleep. I ordered—

℞. Hydrarg. submur., gr.viij
Sach. alba, gr.xxxij. M.
Fiat chart. No. iv.
One to be taken every three hours until the bowels are moved freely.

To have quinine sulph., grs. xx, put in four capsules, one every two hours, commencing early in the day. Bromide potass., grs. xl, in solution, taken *pro re nata*, to secure rest and sleep. Turpentine to be applied along the whole course of the spine two or three times a day, the quinine, potassium and application of turpentine to be continued daily until my next visit, which was three days after this. On my next visit I found the patient much improved. Continued the quinine, potassium, and turpentine. On the next visit, made three days after this, found the patient so much better, discontinued the quinine and ordered elixir, quinine, iron, and strychnine, teaspoonful three times a day, the bromide to be kept up if necessary to procure sleep. About a week from this time the patient returned to the city and resumed his work in the stables, although still in feeble health. He continued in the stables for several days, when he was sent to Oglethorpe Park, two miles from the centre of the city, to take charge of some horses sent there to graze. He remained there two days, when he was taken with dysentery, and returned to his room in the city, which was over the stables where he worked. I was called to see him about 10 o'clock A.M. He was having frequent actions of his bowels, composed

mainly of blood and mucus, attended with considerable tenesmus. Ordered the following prescription :—

R.	Hydrarg. subm ur.,	gr viij	
	Pulv. ipecac,		
	Opii,	āā gr.x	
	Pulv. camphoræ,	gr ij	
	Pulv. acacia,	gr.x.	M.

Fiat chart. No. iv.

One powder to be given every three hours in a teaspoonful of the following cordial: syrup rhei aromatic, Godfrey's cordial, each one ounce; fifteen drops tinct. opii to be used as an enema, with starch and water, every two or three hours, to relieve tenesmus.

About four o'clock the next morning I was called in haste to see the patient. On arriving at his bedside I found him very much alarmed at the appearance of a large peculiar action that he had just passed. On examination I found that the patient had passed a large-sized chamber-mug two-thirds full of bots or grubs, mixed with some fecal matter. I ordered a dose of castor oil and turpentine, with a view of removing any of the bots that might be remaining in the alimentary canal. Though none followed the action of this dose, I have no doubt, from my observations during the war, as to the effects of *calomel* in driving off maggots from suppurating wounds and stumps, as well as the speedy relief afforded horses when suffering from the bots, that the calomel administered in this case was the cause of the expulsion of the bots.

Had I failed to give the calomel in this case it is more than probable that the patient would have died, and his death have been attributed to dysentery. I have never seen any report of a similar case in the human subject, and on this account I am prompted to report this case. The bots in this case were evidently produced, in the first place, by a peculiar predisposition in the alimentary canal, dependent upon the depressed condition of the patient's health; secondly, by swallowing the eggs of the gadfly while grooming the horses.

II. DISEASES OF THE BRAIN AND NERVOUS SYSTEM.

Chloral Hydrate in the Treatment of Convulsions.

Dr. JOHN M. THOMPSON, of Silver street, Newberry county, South Carolina, writes to the *Virginia Medical Monthly*, August, 1877 :—

In the discovery of chloral the profession have an agent of real merit and great value as a hypnotic, second only to opium, and of incalculable worth in the treatment of convulsions and spasms. I will give a few notes showing the beneficial effects of chloral as used in several different forms of this dreaded symptom, which is necessarily met with by the general practitioner.

J. H., aged fifty years, merchant, an habitual opium-eater (morphine), frequently indulges in alcoholic drink to excesss; awoke on the morning of May 15th, 1877, with a severe headache, which continued with increased severity during the day, and was aggravated by taking his accustomed amount of both morphia and alcohol, until 1 o'clock A. M. of the following day, when he was attacked with a severe convulsion, tossing himself about at a furious rate, finally throwing himself completely from the bed. The paroxysm lasted about twenty minutes, as I was informed

on arriving just after he had been placed in bed and had gotten quiet. After an interval of half an hour, during which the patient lay in a perfect stupor, another attack of equal severity followed. On examination I found the pupil dilated; great rigidity of the muscles; pulse weak and slightly accelerated; very little frothing at the mouth. Upon inquiry, I found that his bowels were constipated, which was his habit, and which he generally relieved by enemata; but at this time he had taken a "dose of pills," which had not, up to this time, operated. I at once gave him one scruple each of chloral hydrate and bromide of potassium, which warded off a recurrence of the attack some time, say thirty minutes, when I repeated the dose. Shortly after taking the medicine another convulsion followed, though not so severe nor lasting so long. After he had recovered sufficiently, he was aroused with great difficulty, to take the chloral mixture; after another half hour I gave another dose, when only slight symptoms of spasm occurred.

This was the last attack; the mixture was ordered to be continued every three hours during the day. On examination the next day, I found that his bowels had acted freely, though I afterward gave a mercurial cathartic, with the view of arousing his torpid liver into action. He suffered considerably with headache during the day, until afternoon, when he fell into a tranquil sleep, which refreshed him very much; slept well also at night after taking a dose of the mixture. Next day was up a little, suffering no headache, only from weakness and soreness, due to the convulsions as well as the fall from the bed.

The convulsions in this case were, no doubt, brought on by the arrest of the secretions, notably the liver, though the kidneys were not acting as freely as they should. The indication was to relieve the constipation and arouse the liver, the prime cause, though the repeated convulsions were first to be controlled, which was readily done by the use of chloral. Happily, the constipation was overcome without any means being used, and the administration afterward of several doses of calomel, combined with podophyllin and rhubarb, restored the activity of the liver.

In a case recently, of puerperal eclampsia, after blood-letting freely, I used large doses of chloral at short intervals with the most happy effects. In this affection it ranks with chloroform in controlling the convulsions, though it should be used freely in full doses of thirty to forty grains. In the spasm of children it is the remedy par excellence, and in numbers of cases in which I have used it I have never known it to fail.

Danger from the use of chloral hydrate has been apprehended by some, from it having been alleged that it is converted into chloroform in the blood, but this idea has been pretty well exploded. I have never met with any deleterious effects, after a constant use of it for more than three years, and consider it equally as safe as any other agent of its class.

The profession should give it an impartial trial in this justly dreaded affection, and after a trial I am convinced they will always resort to it.

Thermometry in Diseases of the Brain.

In an article in the *Progrès Médical*, No. 36, 1877, Professor BROCA states his belief that thermometry will become a valuable aid in the diagnosis of brain disease. He uses very delicate thermometers, and, after applying them to corresponding positions on the two sides, covers with wool the part of the bulb which is not in contact with the skull, in order to guard against any thermic influence which the surrounding air might exercise. M. Broca has usually employed six thermometers,

which were placed in sets of three pairs on corresponding parts of the skull. The anterior pair were placed directly behind the orbital apophyses, the middle pair above the ear, and the posterior pair in the occipital region. His first care was, of course, to obtain the average temperature, and to this end he tested the temperature of his *internes* and dressers at the hospital. He found that the maximum temperature of the brain was 34.85° C., and the minimum 32.80° C., the *mean* temperature, therefore, being 33.82° C. But, further, he found that the thermometers on the *left* side invariably marked a *higher* temperature than those on the *right* side. Thus, on the right side the mean temperature was 33.90°, while on the left side it was a little over 34°. This difference was found to average about one-tenth of a degree; *but this difference is only found when and so long as the brain is at rest.* When the brain is active the equilibrium tends to establish itself, and the temperature figures correspond. M. Broca argues that the left hemisphere is more freely supplied with blood than the right, and that the latter, less prepared and less apt, when brain work has to be done, requires a larger supply of blood than the left, and hence the temperature on the two sides becomes equalized. Further, M. Broca has found that not only on the two sides of the brain is there a difference, but that this extends to different lobes of the same side; thus he has shown that the temperature of the occipital lobe was only 32.92° C., that of the temporal lobe was 33.72° C., and of the frontal lobe 35.28° C., which is accounted for by the greater functional activity of the latter. Then, when the brain is actually working, there is a rise of temperature; thus, after reading aloud for ten minutes a rise of about *one-half of a degree* can be shown. The clinical bearings of these observations are not less important. M. Broca considers that the thermometer supplies an additional and an important sign of cerebral embolism; he can even diagnose the part of the brain which is deprived of its blood. As the result of his observations, it appears that at the level of an embolism there is a d crease in the temperature.

Reflex Symptoms from Dental Irritation.

Mr. T. W. Dunn read a valuable paper on this topic before the British Association of Dental Surgeons:—

The first case, which gave the key-note, as it were, to his subject, was a remarkable instance of delayed dentition in a woman between thirty and forty years of age, giving rise, by reflex irritation, to ulcer of the cornea. The ulcer, which had long obstinately resisted treatment, healed directly an upper bicuspid was cut. The following cases were—one of supra-orbital neuralgia in a young lady about eleven, immediately removed by lancing over the second or posterior molar; one of otalgia in a patient of the same age, cured by the same means after anodynes, etc., had failed to do good; two cases of keratitis with ulcer, connected with the eruption of the upper central incisors; one of chorea in a young gentleman of twelve, in which the disorder disappeared with the completion of the eruption of the posterior molars; and another case, where, coincident with the eruption of the posterior molars, an abscess of the thigh, which had been supposed to have become obliterated, resumed activity. Further, the opinion was expressed by the author, that during the dentition of the dentes sapientiæ marked disturbance of the general health, especially in females, was common, most frequently in some form of gastric trouble, such as intense pain and vomiting after food; and he said that many instances had fallen under his notice in which these symptoms had been relieved by lancing over those teeth when as yet hidden under the gum. There was a different class of cases

which the author believed had origin in the reflex irritation of teething, namely, deformities of the lower extremity, mainly of the foot. The deformity of the toes known as hammer-toes, and bunion, were really owing to faulty nutrition of certain muscles, a myotrophic consequent of impaired innervation, and that such impairment was usually synchronous with the dentition of the second or posterior molars. The author drew attention to the fact that writers on ophthalmic surgery made no mention of dental irritation as being a cause of ulcer of the cornea, neither was the simple operation of lancing the gums suggested in that affection in one of the most esteemed and recent works on the practice of surgery.

Nerve-stretching as a Therapeutic Measure, and the Indications for it.

The London *Medical Times and Gazette*, September 15th, 1877, gives, from a monograph of Dr. PAUL VOGT, a history of this operation, and the following indications for its uses:—

In Neuralgia.—If it be generally true that secondary changes take place in a nerve-centre as the result of a peripheral irritation, which, in its turn, leads to an alteration in the vaso-motor district, and then to trophic changes in the nerve itself, we can easily understand why simple neurotomy is so seldom followed by good or permanent results. And after what has been said as to the supposed *modus operandi* of nerve-stretching, it will be conceded that the latter operation is the more likely to be of benefit, either in combination with neurotomy or alone.

1. Nerve-stretching in combination with neurotomy. When we have to deal with a neuralgia of peripheral origin affecting a purely sensory nerve, and one which has resisted all previous treatment, and which we cannot influence by electro-therapeutical means, a case in which no special local measures are indicated (removal of a scar, foreign body, or morbid growth), then neurotomy of the affected nerve, in combination with simultaneous stretching, both centripetally and centrifugally, is indicated. By means of this combination we dispose of the peripheral irritation, or at least we get an interruption of communication with the nervous centre, and also a diminution of the irritability in the course of the entire nerve-trunk, since the action of nerve-stretching goes much further in this direction than simple division of a nerve; and also from the circulatory changes there results an alteration in the nutrition—altered though it already is—of the nerve. Thus there is a combination of effects, which must almost necessarily produce a favorable influence on the disease, provided always that the secondary changes in the nerve-centre are not altogether beyond the possibilities of resolution. This operation, of course, is only admissible for sensory nerves.

2. Nerve-stretching alone will be indicated under analogous conditions for mixed nerves. If we are called to treat a neuralgic affection, we should, of course, remove all local irritations by local measures (such as removing or detaching scars in the neighborhood of nerves), and at the same time, by "stretching," seek to paralyze the result of the previous irritation. We might even, under certain circumstances, proceed to stretch the nerve-trunk without adopting the above-mentioned preliminary measures, when all medicinal and electro-therapeutical measures had previously failed. In the latter case, we should seek to get at the nerve at the nearest possible point to its centre, and by vigorous stretching endeavor to influence the local condition also.

3. Neurotomy alone is indicated in neuralgic affections of a very localized nature,

where a subcutaneous division of the affected nerve-twig would suffice, and where the laying bare of the nerve-trunk would scarcely be justifiable. In this group may be placed neuralgias of single sensory twigs in the case of extensive, and hence not easily extirpated, scars, tumors, and the like.

In Epilepsy.—The cases of epilepsy to which this plan of treatment is adapted are those which we call reflex epilepsy, depending on some appreciable or fairly obvious injury of a peripheral nerve distribution. There is on record a large number of cases where the removal of scars, neurotomy, etc., have led to a perfect cure. The following would seem to be an exceedingly suitable case for the operation: A man had a small tumor removed from the cheek. The wound only closed slowly. Shortly afterward, after any great exertion or excitement, he began to experience a feeling of heat about the scar, and occasionally a twitching and spasm in the muscles of the neck. These symptoms became aggravated after a time, and now he is the subject of well-marked epileptic attacks. On examining the local conditions more thoroughly, a scar, about the size of a florin, is found in front of and beneath the angle of the right jaw. It is not painful or tender, and nothing abnormal is found in the surrounding parts. But there is one point which is painful, from which the twitchings seem to start. Topographically it corresponds exactly to the point of exit of the nervous cutaneous colli superior et medius of the cervical plexus. The author believes that he has here found the source of the peripheral irritation, and has advised stretching of the nerve-trunk where the twig arises. In all cases, however, the indication must be exact and precise if we would be successful.

Traumatic Tetanus.—Contrary to the advice given in the two previous classes of cases, we must in this disease proceed to operation at once, and not wait until all therapeutic and anæsthetic measures have been tried. If needs be, order these measures in addition to the nerve-stretching, but not in its stead. The surgical treatment may be both local and central. The cases, however, where any active local treatment can be of avail, are those in which no important changes in the central nervous system have shown themselves. The period during which local treatment might be of service is exceedingly short. In some patients, the central manifestations come on simultaneously with the disease; and here, of course, local treatment would not be of any avail whatever. As compared with all previous operative interference, nerve-stretching accomplishes much more, is a harmless operation if it even do not succeed, and does not require a solution of continuity in the nerve.

The group of cases above given has been selected in order to give some definite indications for undertaking this operation. But it is obvious that a much larger group might have been given. In order to sum up, then, we may state that the prominent symptoms which call for this treatment are exalted irritability, and disturbed function due to a disturbed blood circulation at the peripheral termination of a nerve.

Technology of the Operation.—The actual accomplishment of such an operation appears very simple, and yet, from a study of all the published details, it is clear that final success depends very much on attention to small matters, which sometimes are apt to be forgotten. The operation may be divided into three stages:—1. Laying bare the nerve within its sheath. 2. Drawing forward and stretching the nerve. 3. Reposition and application of dressings. The first act of the operation is a most important one. In the case of traumatic tetanus before reported, some important changes were found, not only in the nerve itself, but also in the surroundings of its

sheath; in all such cases it is recommended directly to free the nerve-sheath on all sides as far as one can reach; stretching then accomplishes the rest. The second act of the operation may be performed either manually or instrumentally. For the drawing forward of the nerve, one naturally uses a blunt hook, or an elevator, or, for a small nerve, an ordinary aneurism needle. The actual stretching is best accomplished by passing the forefinger, appropriately curved, beneath the nerve, and using it in conjunction with the thumb. By this means, we secure as much force as is necessary, provided we place the limb in a suitable position. Were a hook used for the stretching, there would be danger of locally injuring the nerve itself, which is not possible when the finger is used. In the case of small nerves, it would be impossible to pass the finger beneath them, and hence a thin elastic band may be substituted. In this way, an elastic traction can be exercised without the risk of bruising or otherwise injuring the nerve itself. The last part of the operation consists of the dressing. If the stretched nerve does not recede when the limb is placed back in its normal position, or if the part operated on is one (the face) in which these movements would be impossible, the operator must gently tuck in the nerve into its bed. A small piece of drainage tube is to be placed at the bottom of the wound, which may then be appropriately closed by a few sutures. Lister's dressing and spray ought to be used in these cases, as rapid union and a small scar should be the results desired.

Value of the Turkish Bath in Insanity.

Dr. EDWARD WALFORD, of the Northwood House Asylum, England, writes to the *British Medical Journal*, July 7, 1877:—

In the annual report of the Colony Hatch Lunatic Asylum for 1877, Dr. Sheppard makes the following remark with regard to the use of the Turkish bath: "The more I see of the effects of hot air in the treatment of certain forms of insanity, the more am I persuaded that no asylum can lay claim to completeness which is not furnished with this apparatus for eliminating poisons and renewing life." The following case will, I think, serve to confirm that statement, or, at any rate, would seem to indicate some therapeutic value of the Turkish bath in a case of melancholia.

I was induced to take a few notes with regard to the more immediate effects of the bath, on account of some observations published in the *Lancet* of May 20th, 1876, by Dr. Duckworth Williams, with respect to the alteration in the respiratory functions during the free perspiration caused by the bath. The case was one of ordinary melancholia in a man forty-two years of age. The complaint originated about a year previous to taking the baths, and was attributed to a sunstroke in India. The patient had rather an emaciated appearance. The liver and digestive organs were out of order. He was profoundly melancholy and taciturn, and had delusions of a religious kind. During a period of six weeks the man had twelve Turkish baths, two a week. The following are the notes with regard to the alteration in the respiratory movements and pulse, which fully bear out those made by Dr. Duckworth Williams: First bath: respirations 18; pulse 100; temperature of bath 175°. Second bath: respirations 17; pulse 100; temperature of bath, 175°. Third bath: respirations 15; pulse 100; temperature of bath 180°. In each successive bath it was observed that the respiratory movements and pulse maintained about the same ratio during free perspiration. The after-effects of the bath were as follows: About half an hour after the first bath the patient fell into a calm sleep, which lasted some

urs, from which he awoke greatly refreshed, and appeared for a time to show nptoms of becoming more sociable. From the time of first taking the baths, it s unnecessary to give him any sedatives. He had previously been in the habit of king chloral, but from that time a fair amount of natural sleep was obtained, and drugs of any kind were administered. He rapidly gained flesh; his appetite proved; there was no longer any difficulty in persuading him to take food, and liver and digestive organs performed their functions in a natural manner. At e end of the period of his taking Turkish baths there was certainly a marked provement in his appearance. From being a thin, weak, depressed-looking man, fering from dyspeptic symptoms, he became, after about six weeks, decidedly more erful, had gained weight, and his delusions seemed to be gradually leaving him. ave since heard that he is making steady progress. The improvement in this e, especially with regard to the effect of the bath in producing natural s'eep, med to me so encouraging that I am induced to publish it.

The Treatment of Neuralgia.

Dr. T. CHURTON writes to the *British Medical Journal*, April, 1877 :—

I have for several years used a simple and ready method of discovering whether nulants and tonics, or whether alkalies and aperients, would be more likely to re any given case of facial or dental neuralgia. The patient is first directed to ld warm water in his mouth, or to otherwise apply warmth to the seat of pain ; d if little or no relief is thus gained, but especially if, as often happens, the pain actually intensified, then to employ cold water in a similar way. If the cold ter relieve the pain, this is regarded as being chiefly due to impurity of blood ; d I have always found that it is relieved with certainty by magnesia and dieting. on the contrary, warmth relieve the pain very distinctly, then tonics, varying as e locality (district), constitution of patient, and precise causation, are surely indited, and will, if in sufficient doses and combined (when necessary) with sedatives, nove, for a time at least, but often altogether, the insufferable pain. Many cases ve occurred in which patients, at first resolutely bent upon having one or more th extracted, have been enabled to retain them for years, simply by putting in actice this test and its associated treatment. There are some cases of neuralgia in erworked persons in which both plans of treatment are requir d. A man catches ld and has hemicrania. He is better out of doors; but, upon entering a warm om, is shortly in unendurable pain, especially the trunk of the affected side, owing pressure upon the iliacus. In such instances, physical examination may detect thing; but usually there is a sense of resistance felt in one direction ; often there a tumor felt in one iliac fossa, and yet the patient is able to walk about and tend an "out-patient department." In such a case, attending Dr. Sutton's clinic, dden bursting into the peritoneum occurred, and terminated life before the woman uld be removed to the ward; here the mass had suppurated. In another case, e resulting abscess burst into the rectum, and produced a painful ulcer at the int of rupture; the case, however, though tedious, did well.

Chloral Hydrate in Tetanus.

The annexed cases of cure of tetanus by chloral are given in the *Lancet*, August th, 1877, by Dr. JASPER CARGILL, of Jamaica :—

CASE 1.—A constable, aged twenty-eight. Injury: laceration of soft parts of

jaw and alveolus, in trying to punch out a decayed tooth with a horseshoe nail. This was a very severe case, and several medical men saw it with me. Opisthotonos was so well marked that I was obliged to place pillows under the spine to prevent injury to the neck. Lockjaw during the first four days rendered it necessary to resort to nutrient enemata. Temperature went as high as 108° F. The treatment consisted of chloral hydrate, and no other medicine, after clearing out the bowels with calomel and castor oil. The doses varied from ten to thirty grains. The attendants, who witnessed the marked effects of the remedy, knew well when to renew each dose. The man was, in fact, kept constantly under the drug, more or less. The active treatment lasted ten days, but for several days during convalescence a spasm would now and then return, which was at once relieved by a dose of chloral.

CASE 2.—A boy, aged seven. Injury: While walking on the grass, barefooted, a large number of cactus thorns broke into the soles of both feet. Tetanus quickly set in. When sent for I was attending a lady in her confinement, but a medical friend saw the case for me the first day, and gave purgative medicine treatment. I extracted as many of the thorns as possible, and applied tallow poultices to the feet. There was retention of urine in this case, which rendered the use of the catheter occasionally necessary. I gave six grains of chloral hydrate, so as to keep the child under the influence of the drug almost continuously. There was opisthotonos and stiffness about the jaws. The case yielded to treatment in three weeks.

CASE 3.—A white man admitted into my small-pox hospital on December 22d, 1874 on the fourth day of eruption, which proved to be confluent small-pox. His feet became dreadfully sore, and the cast of one came completely away, leaving a raw spongy surface, exceedingly painful. This I dressed with oxide of zinc. On January 6th, 1875, well-marked tetanus set in, with rigors. The spasms were characteristic and frequent, accompanied with an involuntary noise from the throat, as if the lungs had been suddenly pressed. No lockjaw, but decided opisthotonos. Commenced the chloral treatment at once, but the weak condition of the patient rendered it necessary to administer the drug with great caution, and combine a large amount of brandy and ammonia. I thought the case a hopeless one, but on the 10th of January the tetanic spasms began to subside, and the raw surface on the feet commenced to heal. The man continued under treatment until the 5th of February, having gone through a severe attack of confluent small-pox and tetanus. There is no doubt in my mind that chloral saved his life.

A Case of Saltatoric Spasm.

This name has been applied to a form of convulsive disorder by Professor Bamberger, a typical case of which is thus described by Dr. W. R. GOWERS, in the *Lancet*, July 14th:—

Annie L., aged ten years, had suffered from "fits" for twelve months. No family history of nerve disturbance could be obtained. The first fit occurred soon after a fright. In the attacks she fell suddenly, and lay quiet and apparently unconscious, but was quickly brought round by a douche. Under treatment in the hospital (where she was under the care of Dr. Radcliffe), the attacks ceased. A month after the cessation of the attacks, she was admitted to the country branch under my care. She appeared quite well for a week, and then suddenly had an epileptoid seizure, of which the following account was given: During the evening she had been noticed to start occasionally while standing. At half-past seven she was

observed suddenly to be falling in a fit. She was caught by the nurse, who was close to her. Her arms and legs were stretched out, rigid, and quite steady; her face was red; she seemed quite unconscious; her eyes were closed. She was placed on the floor, and lay there for a quarter of an hour, when she was found to be less stiff, and some signs of returning consciousness were noticed. Presently she seemed conscious, but was still somewhat rigid; the rigidity gradually passed away. She complained of a severe pain between the shoulders and down the back. She was then raised into a standing posture, but as soon as the soles of her feet touched the ground violent jumping movements occurred, so severe as to throw her down. When placed on a chair she was still. A little general tremor was noticed, but there was no jerking. As she recovered consciousness she rubbed her eyes, and said she could not see, and appeared for half an hour to be quite blind. She then went to sleep. Slept pretty well all night, and awoke in the morning able to see as usual. On trying to stand the same jerking occurred, though rather less than on the previous evening. During the morning the spasm increased in severity. I saw her in the afternoon. There was then considerable rigidity of the legs, passive movement being opposed at all the joints. Sensation seemed a little impaired, but it was not easy to judge accurately. She felt a gentle touch on either leg, but said she "did not feel it well." A pinch was felt, but not acutely. There was certainly no hyperæsthesia. While sitting, her legs were perfectly still. On attempting to stand, as soon as the weight of the body was thrown on to the legs, the legs were the seat of violent clonic spasm, simultaneous in all the muscles affected and in the two legs, which jerked the whole body and arms up and down. It was not easy, so rapid and forcible were the movements, to say what muscles were involved. Certainly those below the knee were not. The feet were kept flat on the ground, and the motion was at the hip and knee joints, especially the former. The muscles of the back seemed also to be involved. When she sat down, all the spasm ceased. No "tendon reflex" could be produced by putting the gastrocnemius on the stretch in the way which excites it so readily in lateral sclerosis of the cord. When lying on her back she could raise the left leg slowly from the couch without any unsteadiness, but when doing so there was a little jerking in the right leg. The right leg was raised with more difficulty than the left; it jerked a good deal in all parts. On supporting the thighs, extension of the knee joints still caused some jerking of the right leg. She was unable to extend the toes of the right foot, but could move those of the left quite readily.

Bromide of potassium and tincture of belladonna were ordered, and sponging of the spine with hot water. Little immediate relief, however, followed. The next day her condition was nearly the same. In the evening she was placed in a hot bath, wrapped up in blankets, and made to sweat. She went to sleep, and in the morning woke up perfectly well. She could move the right leg steadily and well, and could stand without the slightest jerking. There was no relapse.

Aconitine in Facial Neuralgia.

Professor GUBLER, of Paris, has strongly urged the use of aconitine. The London *Medical Record*, April 15th, quotes this expression from him:—

"I do not know a neuralgia of the fifth pair, even a tic douloureux, which has resisted aconitine." In support of this statement M. Gubler reported many curious facts. He gave, among others, the history of a patient who came to him screaming. He had suffered day and night for three months. With aconitine the pain com-

pletely disappeared; tired of taking it, the patient ceased the remedy; the neuralgia reappeared, and yielded anew to the aconitine.

M. Gubler saw besides, some years ago, a patient afflicted for a long time with an obstinate trifacial neuralgia, for which Nélaton had performed resection of all the nervous filaments; this had only given temporary relief. This man talked of killing himself, when, under the advice of Debrut, he was given the aconitine of Hottot. The pain was absolutely suppressed.

Dose of the Remedy.—According to Gubler, the aconitine of Hottot and Liégeois is excellent, and that of Dugurmel is very powerful. Neither granules nor pilules suit the taste of the learned professor of therapeutics, he preferring a solution of aconitine. If the solution of nitrate of aconitine be used, half a milligramme ($\frac{1}{110}$ grain) of the nitrate may be given, which is equivalent to a quarter of a milligramme ($\frac{1}{180}$ grain) of aconitine. The dose may be pushed much further. In the first patient mentioned above, the pain did not completely disappear until the dose had been progressively increased up to six milligrammes ($\frac{1}{11}$ grain). In the patient on whom Nélaton had operated, five milligrammes ($\frac{1}{13}$ grain) of aconitine of Hottot was given. With three milligrammes the pain returned, but with five milligrammes the patient suffered no more. If pilules or granules be used, one may be discouraged by the nullity of their effect for a certain time, and thus led to give too large a dose. The nullity of effect results, in fact, from non-absorption. This does not happen with a solution.

Troubles caused by Aconitine.—M. Gubler has seen only one case in which any trouble was caused by the aconitine of Hottot. A patient, who had taken 1½ milligrammes in sixteen hours, lost consciousness. M. Gubler thinks that aconitine is too much mistrusted, as it offers no danger when prudently managed.

It will be better to abstain from its use in persons affected with heart-disease. In support of this statement, M. Gubler gives some cases in which cardiac troubles were present.

Sciatica Treated by Oleum Terebinthinæ.

In a paper read before the Medico-Chirurgical Society of Edinburgh, and published in the Edinburgh *Medical Journal* for March, Dr. W. A. Jamieson recommends the use of oil of turpentine in sciatica, especially in the form connected with the period of degeneration of tissue. In this form of the disease, pain often commences first in the lumbar and sacral regions, and then after a variable time creeps downward into the parts more immediately supplied by the great sciatic nerve. Points tender to touch also manifest themselves successively from above downward. Cutaneous anæsthesia is also a symptom, but is often masked in the early part of the disease by the tenderness of certain portions of the skin becoming a prominent feature during its decline. The motor branches of the nerve are often, indeed, usually affected, locomotion being impaired quite independently of the pain resulting from use of the limb, and consequent pressure on the nerve and its branches by muscular contraction. The predisposing cause is in many cases long-continu d pressure on the sciatic nerve, as in persons of sedentary occupations; and perhaps position in sitting may determine which nerve is affected. Dr. Jamieson has employed turpentine as the first remedy in eleven cases of this affection. In ten, a single dose produced such an amelioration as to render lying on the side affected, or even sitting up, quite possible. A second or third, in several even a fourth dose, was required to reduce what was previously intense suffering to a state of slight

numbness. In one man it failed to cure, though his case seemed well suited for its employment.

To do good in the sciatica of the period of tissue degeneration, turpentine must be given in doses of at least two drachms, combined with half an ounce of castor oil, suspended in mucilage, and rendered more palatable by the addition of an ounce or so of cinnamon water. The draught is best taken early in the morning. The dose generally acts powerfully two or three times, but its action is not followed by exhaustion at all commensurate with its effect on the bowels. Sometimes there is considerable difficulty in keeping the mixture down; usually, however, this is less urgent when cinnamon water is employed as the vehicle. In the treatment of all forms of sciatica absolute rest in bed must be maintained, not only while the pain continues, but for some time after it is gone. This is oftentimes difficult, as patients rebel against what they consider an unnecessary restriction.

The Treatment of Chorea.

On this subject, Dr. OCTAVIUS STURGES, physician to the Westminster Hospital, London, says in the *Medical Times and Gazette*, June 16th, 1877:—

1. The duration of chorea is not to be measured by its violence. Whether severe or slight, it is never very short, and, except for the rare accident of counter-shock or the intervention of acute illness, never ends abruptly. Duration and severity being thus independent, it is very difficult to adduce satisfactory evidence that the course of the affection is favorably influenced by drugs. So far as appears to my own observation, cases treated without medicine yield as good results as those treated with whatever medicine.

2. No treatment of chorea, whether medicinal or otherwise, can be fairly judged of unless by reference to the existing phase of the disease. Chorea has its ebb and flow. Remedies given during its natural decline are apt to be regarded as beneficial, while those taken during its natural rise are regarded as harmful, neither conclusion being, in fact, justifiable.

3. As chorea is a mental affection, its cure is to be sought through a mental appeal. The measures likely to be immediately harmful or useful are, indeed, indicated by the symptoms. Chorea is aggravated by emotion and close inspection; it ameliorates with mental and bodily repose and preoccupation; it ceases altogether in sleep and during intervals of musing. Here, then, are the materials for its cure. Any method of treatment which places the child under obvious surveillance, and thus makes it attentive to itself, must tend to aggravate the complaint and aid in its development. There is this grave objection to all formal attempts at muscular discipline, to systematic giving of medicine, and the regular visits of a doctor. It is one great aim to draw the child from itself, and to cultivate that frame of mind which at all ages alike is most friendly to bodily stillness; to steady the limbs by steadying the mind. At the same time we have to regard the disorder as tending each day to become more fixed. It is most necessary to keep in memory the old habits of order which the new have in a measure displaced. To accomplish at once with any completeness the two desired ends of drilling the muscles and diverting the mind is impossible. Gymnastics, games for the fingers, extension motions, etc., are all apt to fail, because the good to the muscles is more than counterbalanced by the harm to the mind. The best working rule is that which aims to divert the mind in the first place, and reëducate the muscles in the second. Chorea at the starting must have its way. From its first discovery its extension from limb to limb must

be regarded as probable, and accepted with good grace without apparent notice. To rest the overworked and tired limbs; to secure a large measure of sleep; to make the time pass evenly, yet without the weariness of monotony; to save the voluntary muscles the mortification of failure by anticipating the child's wants, these, as I believe, are the most serviceable duties which can be rendered at the outset of chorea. Yet they must be done without ostentation and without the child perceiving that he is being tended and watched and treated as one sick.

Active measures must come later. When the first signal of improvement is recognized, simple limb movements may be devised, so that the patient may gather confidence from the observation of his own improvement. It will be less difficult now to disguise the intention of such exercise by making a game of it. Failure is never to be noticed and success always praised, the love of applause being a hardly less powerful motive with the child than with the man. At the same time the petulance and irritability which chorea is apt to engender need precisely the same correction as heretofore. Any special leniency toward such faults, on the ground that the child is ill; anything that would tend, as it is said, to "spoil" the child, must tend also to weaken that self-control which it is our main object to strengthen.

4. Much has been written on the importance of improving general nutrition, an injunction which, in the case of children, is thought to be fulfilled by means of cod-liver oil and steel wine, with an ample supply of nitrogenous food. In regard to such treatment, I think it may be said that neither iron nor cod-liver oil is of better or other use to children that are choreic than to others. The patients likely to benefit by these agents are recognized by signs with which we are all familiar. Chorea in itself affords no indication for the use of such remedies. So also with nutrition. It is true that a large number of choreic children, as of hysterical girls, show by their furred tongues and disordered excretions that digestion is disturbed, and that they need careful dieting, and sometimes medical treatment, on that account. But I do not find that choreic children, as such, require more food, or other food, than their companions. "Improved nutrition" is not accomplished, as some seem to believe, by excessive feeding. In the great majority of instances, indeed, the capacity of digestion is precisely satisfied by the amount of food actually taken. You do not nourish *pari passu* with the food you put down. The powers of assimilation are much less variable than our popular theories would imply, and even children cannot eat to order. By high feeding (especially with excess of nitrogenous food) nutrition is not improved, but impaired. With the children of the poor, no doubt, and sometimes with the children of the rich, where some theory has prevailed to keep them hungry, more food may be usefully given. The appetite, after all, is the great and imperative regulator.

5. As regards drugs in chorea, I repeat that I have not seen patients improve under their use in such way as would justify the belief that the good (which it is to be remembered is pretty sure to *come*, in its time) was due to the means. The gradual improvement of a chorea that has lasted some time (and how seldom is chorea recognized at the first as coming within the province of the doctor?) is no proof whatever of any virtue in the medicine that is being taken. It is the natural course of the complaint. I have a belief, sufficiently strong to induce me to make trial of it on occasion, that arsenic sometimes changes the current of the disease and hastens the time of improvement; yet even this measure of success has been so partial and equivocal that the statement of Dr. Begbie, that "he has never known arsenic fail in an experience of thirty years," strikes me as amazing. The asserted efficacy of

such medicines as arsenic and antimony, in what are called "high doses," must be taken in conjunction with the fact (of which examples are numerous in this hospital) that it is the habit of chorea to retreat before general illness. These drugs, given in disturbing doses, may stop chorea, by virtue of their poisonous properties. Some such explanation seems almost necessary to account for the discrepancy between those who never knew arsenic to fail, and those with whom it fails habitually.

Of sulphate of zinc I have made repeated trial, increasing the dose sometimes to as much as half a drachm three times a day, with no result that I could perceive of any kind. Children soon get to receive this nauseous dose with perfect tolerance and indifference. The same may be said of the juice of conium.

Of the just now popular method of feeding nerve tissue by means of oil and phosphorus I have made no trial. It seems more certain, indeed, that phosphorus is a mischievous poison than that it is an available nerve food. And if it be an available nerve food, I know of no evidence that the nervous structure of choreic children is deficient in this respect.

There is another drug, which is also a poison, commended on the high authority of my friend and colleague, Dr. Radcliffe. It is alcohol. For this child's disease, "for various reasons, theoretical and practical," Dr. Radcliffe advises the free use of alcoholic drinks, "pushing them," as he explains, in severe cases, "until they produce drowsiness." For my own part, both theory and practice seem opposed to such treatment. The effect of alcohol upon coördination and strength of will would not predispose me in its favor, while, speaking practically, instances of chorea threatening life, and suddenly arrested, are not sufficiently numerous to establish a claim in that respect for any drug upon empirical grounds. I can conceive of no reason for giving alcohol half so strong as the very obvious ones for not giving it, nor of any doctrine more dangerous to the poor than that their children's limbs are to be made steady by drink.

6. But while the nature of chorea, no less than the result of experience, forbids us to expect direct aid from the use of drugs, it is idle to place reliance on mere conduct rules and mental discipline in that severe and sometimes fatal form of the disorder which chiefly calls for medical interference. This extreme condition is happily rare. Succeeding, as it does, the common and more moderate chorea with which we are all familiar, it may indicate, as I have said, the commencement of irremediable organic changes due to the functional disorder. And if this be so, the same motor disturbance may by its continuance extend the mischief it has once provoked. In such extremity it becomes desirable to still the limbs by force. It is matter of experience that the movements of choreic children may sometimes be forcibly restrained without suffering. I should not hesitate to employ such restraint in the violent cases in such measure and manner as the sensations of the patient should seem to dictate. I must add, however, that I have not made such trial of this plan as to justify my commending it on other than hypothetical grounds. For the rest, although the conclusion will seem lame and impotent to those who "love remedies," and are consequently slow to distrust them and disconsolate in their absence, I would repeat with the fullest concurrence the concluding sentence of a paper upon this subject by Drs. Gray and Tuckwell, to which, had time permitted, I should have referred at length :—

"An isolated ward, a good nurse, a large crib well padded round, plenty of nutritious food without stimulants, on these we shall feel inclined to rely in the treatment of severe chorea, till we obtain more conclusive evidence than has yet been

adduced that the disease can in the slightest degree be favorably influenced by any drug as yet discovered."

III. BLOOD DISEASES.

Progressive Pernicious Anæmia.

Le Progrès Médical has, in its number of August 25th, given an able summary of this complaint, which we abstract for our readers:—

In 1871, Gusserow, Biermer, and after them a certain number of German physicians, gave the name of progressive pernicious anæmia to a new disease.

The characters of this affection were discussed in two very interesting articles in Nos. 16 and 17 of the *Progrès Médical*, 1876, by M. Brissaud. After examining the descriptions, and analyzing the observations of the partisans in favor of this new disease, M. Brissaud concluded that, as far as regards this anæmic form of disease, there was nothing truly pathognomonic, either anatomically or in the series of observed phenomena.

This opinion has been shared by most of the French physicians who have devoted themselves to the question, and was defended in a thesis sustained at the Faculty of Medicine, Paris, by M. Ricklin.

More recently, in Nos. 24 and 25 of the *Gazette Médicale de Paris*, 1877, some new facts have been related, bearing on the thesis of M. Ricklin, and Dr. Sevestre has, owing to this, been induced to give a resumé of the work of M. Ricklin in the *Progrès Médical*, of which the following is the result:—

1. We must first eliminate from the group of so-called anæmias, pernicious and progressive, those cases amenable to recovery, as they are consequently neither pernicious nor progressive.

2. Besides, to establish the existence of a malady which especially rests on the absence of lesions, we cannot reasonably accept observations unaccompanied by an autopsy.

M. Ricklin quotes the case of a patient under the care of M. Sée, who for a year presented no other symptoms but those of very serious anæmia. The partisans of progressive pernicious anæmia might have claimed this as an illustration, if an autopsy had not revealed the existence of absolutely latent cancer of the stomach.

3. Many facts have been observed in women, who, living under deplorable hygienic conditions, became pregnant time after time. An autopsy revealed fatty degeneration of the heart. These facts, according to M. Ricklin, placed them among puerperal chlorosis, a variety of anæmia known for a long time.

The Causes of Anæmia.

In an article in the *Medical Times and Gazette*, May 5th, 1877, Dr. James Andrew writes:—

Anæmia may arise in very many different ways. The composition of the blood is the result of the sum total of the changes which it undergoes in its passage through the different organs and parts of the body. These changes vary not merely in organs differing as widely as the kidney and the brain, but also probably in the case of every single bone and muscle. Any abnormal change anywhere, any increase or diminution of the activity of any organ or part, must *pro tanto* interfere with the

t balance of the whole, and thus tend at least to produce a condition of the blood re or less unfit for its manifold functions, and among others for its own produc- ; and in this way changes, not in themselves, perhaps, properly to be called emic, may yet bring about anæmia. Practically the following are frequent causes anæmia. I do not pretend to offer anything like a complete list, but it is neces- y to my argument to show the very wide range of these causes, and the conse- nt difficulty, I might say impossibility, of excluding them all in any one case, l thus being driven to fall back upon some unknown mysterious cause:—1. Hem- hage, traumatic or pathological—*e.g.*, epistaxis, hemorrhoidal hemorrhage, men- hagia, post-partum hemorrhage. 2. From improper and insufficient food—*e.g.*, extreme cases from scurvy. An ingenious German, Dr. Dyes, suggested, some years ago, that the increasing prevalence of anæmia is due to bad teeth and bad dical treatment, especially the abuse of mercury and bleeding. 3. From impure —*e.g.*, compare the general effect of indoor with that of outdoor occupations. ere is no need to go into special details of the action of unhealthy gas—*e.g.*, as to ether it depends upon some such condition as (1) want of ozone, (2) excess or ciency of watery vapor, (3) excess of carbonic acid gas, (4) presence of gaseous ducts of manufacturing processes, (5) presence of sewer gas. We are familiar h the effects produced by some at least of these, and anæmia is a constant result. Anæmia in connection with definite changes in the structure of organs, more or sufficient to explain it. Of these changes, some give rise to special well-known ms of anæmia—*e.g.*, Addison's disease, chlorosis in connection with uterine ible and imperfect vascular development, leucæmia splenica, lymphatica, lieno- mphatica, or myelogenica, the effects of malaria. But less definite forms of anæ- no doubt frequently take their rise from disease, it may be only temporary, of e organ, such as the lungs, heart, stomach, intestines, liver, kidney, brain, and nal cord. 5. From parasites—*e.g.*, trichina spiralis or echinococci, or the endemic maturia of the Cape of Good Hope, or the ankylostomum duodenale of Cayenne. From discharges more or less chronic—*e.g.*, varicose ulcers of legs; and the effect such discharges is often out of all proportion to their amount. Even gonorrhœa, the injudicious use of blisters, may produce anæmia. 7. In connection with te disease—*e.g.*, typhus, small-pox, or rheumatic fever. This form of anæmia is en serious, although no distinct local lesion can be anywhere detected. 8. In nection with certain constitutions or diatheses—*e.g.*, gout (especially if heredi- y), syphilis, and struma. 9. From the action of poisons, such as mercury, lead, the long-continued use of alkalies. 10. Depressing mental emotions. This very perfect enumeration is sufficient to make it clear that the diagnosis of idiopathic æmia is not to be lightly made. It is far more probable that any given case pends upon some ordinary cause which eludes detection than upon some mysterious thological process, the existence of which it is unnecessary, and therefore unscien- ic, to assume. In fact, in this connection, "idiopathic" is nothing more than a ak for ignorance, or it may be hasty observation. Even with the utmost care and ill, and under the most favorable circumstances, the diagnosis of idiopathic anæmia ay prove to be a mistake. No case can be accepted as such until the diagnosis e verified by a post-mortem examination.

Some few cases have been published, many such have, no doubt, occurred, in hich after death some common organic lesion has been found to be the cause of s upposed essential anæmia. So far as the fatal cases are concerned, it is, in fact mpossible to distinguish by means of clinical symptoms between an essential anæmi

and one which depends on some ordinary cause. A woman suffers from post-partum hemorrhage, and dies from its effects, not immediately, but after the lapse of two or three weeks; we do not call that essential, or idiopathic, or pernicious anæmia, and yet the history alone enables us to make any different diagnosis; the clinical symptoms are identical. Again, it by no means follows that because an anæmia is idiopathic—*i.e.*, because we fail to discover its cause—that therefore it is fatal. I am sure few can deny that they meet, and frequently meet, with cases of anæmia for which they utterly fail to discover any cause. And these idiopathic anæmias are in most instances readily and speedily cured by simple means, such as change of air or occupation, with or without some common drug. It is only when our treatment fails that we begin to talk of "pernicious anæmia." There seems to me to be no more right or occasion to do so than there is to talk of pernicious bronchitis or pernicious measles.

The difference between cases which recover and cases which do not recover is in each instance one of degree and not of kind. I would claim, then, to have established, at least, a probability that neither our ignorance of the exact cause of anæmia, nor its fatal result, nor these two circumstances together, make it in any way necessary to look for an explanation of these cases outside the common well-ascertained causes of anæmia. For, first, fatal cases of anæmia, depending upon well-known causes, do not seem to differ essentially from those whose causes we do not know; and, secondly, we meet with numerous cases of anæmia whose cause is unknown to us, but which yet do not terminate fatally. I claim, therefore, assent to my thesis that there is no such disease as progressive pernicious anæmia. But I have no wish to rest content with a merely destructive statement. Is it possible to give any explanation of these most interesting cases? I believe that it is, that the clue is supplied by the very history of the cases themselves. To understand them, we must look not to the existing cause of the disease or its supposed nature, at best a very vague metaphysical abstraction, but to the constitution of the patient, the "personal factor" in the case. People differ as much in lung-power, liver-power, kidney-power, stomach-power, or lymphatic gland-power, as they do in intellect, or in moral or muscular strength; and in any one given case any of these organs may, and does, break down utterly under a strain which others scarcely feel at all. Just as an amount of exercise which does nothing but good to a fairly strong, healthy man, may kill on the spot an older, less sound, or feeble man. Expose two persons to the same amount of cold and privation, and they will almost certainly suffer in different ways. It cannot be necessary to give instances of what must come under the daily observation of us all. By way of illustration, two chains, whose breaking power is the same, will yet probably not give way at the same link. In the same way people differ in blood-making power, and one will succeed in making good blood, when that fluid has been impoverished or altered to an extent which would prove fatal to another.

The Condition of the Heart and Vessels in Chlorosis.

The *Medical Times and Gazette*, June 29th, 1877, reports that Dr. PEARSON IRVINE, in a paper on this subject, said that certain cardiac physical signs have long been associated with chlorosis and allied conditions, and, above all, a "hemic" murmur at the base, by some said to be generated in the aorta, by others in the pulmonary artery. It is rare to find in text-books mention of any other of the cardiac signs met with in the above diseases. The most important change in the circulatory system is dilatation of the ventricles of the heart, especially, perhaps,

e left. This is hardly noticed by writers in this country. In Germany, Stark *Archiv der Heilkunde*, 1873) insisted on its occurrence in severe cases, but it is ommon to find it in those of moderate degree. Besides physical signs, subjective mptoms favored this opinion, such as frequent palpitation, dyspnœa, cough, and e state of the pulse, as do also the results of treatment in its direction. The physal signs are often almost conclusive. The apex-beat in chlorotics is carried too r outward, is too diffuse, and in this respect corresponds with the general cardiac npulse, which is usually "slapping," and, like that met with in organic disease, llowed by dilatation. Sometimes the impulse is distinctly heaving, and hyperophy undoubtedly occasionally occurs. Virchow and others have maintained that is is the usual condition in chlorosis, and have ascribed it to narrowing of vessels. erhaps, however, when it occurs, it is simply secondary in most cases to anæmic. ilatation. The cardiac murmurs heard in chlorosis are various, and exclusiveness ould not be claimed for one or the other. They may be heard in one or several of he following positions, all being systolic in rhythm, yet separable from one another hen two or more coëxist: 1. Over the aorta. 2. Over the pulmonary artery. 3. Over the left auricle and its appendix. 4. At the left apex. 5. Over the fourth eft costal cartilage; limited there or transmitted downward to the right or left. . In the fifth left space, below it or over the sternum, adjacent to these parts. Thus murmurs may be heard "all over" the cardiac area, and yet it be possible to ocalize them. The effects of pressure in intensifying murmurs in the area of the ulmonary artery are almost conclusive of their generation within it. Frequency f aortic murmurs is more doubtful, but their occurrence has been asserted by many minent physicians. At the apex a bruit will often be found if looked for, and in ts case the question arises whether or not it is due to mitral regurgitation. It can e explained on better grounds than supposition of the latter. Over the auricular appendix a murmur is certainly sometimes heard, as Naunyn says, who believes it to e due to the eddying of thin regurgitated blood in the auricular appendix. Dr. Balfour supports this theory, and by its supporters almost exclusiveness is claimed. Perhaps this murmur has been confounded with bruits generated in arteries about he clavicle, and with those whose greatest intensity is over the fourth cartilage. Dr. Balfour asserts that this auricular murmur is heard in all cases where the venous hum in the neck is decided. This is certainly not the case. The murmur audible over the fourth cartilage or below it, or in parts adjacent, is of great importance. It is as common as any abnormal sound heard in chlorotics. Quite ten years ago, Parrot, of Paris, described a murmur in the area mentioned as met with in acute anæmia from hemorrhage, and a sociated with evidences of tricu pid regurgitation in the veins of the neck. He has since argued that all the murmurs heard in chlorosis are due to tricuspid regurgitation. But this exclusive view is altogether arbitrary. The fourth-cartilage murmur is sometimes tran mitted downward to the apex or toward the ensiform cartilage. A consideration of hemic murmurs is likely to aid in explaining many so-called organic ones. In chlorosis the murmurs heard at the fourth cartilage and below it are perhaps due to the dilatation of the ventricles, to their consequent imperfect emptying, and the eddying of thin residual blood in them. Sir Dominic Corrigan long ago gave this explanation of some apex murmurs in mitral disease, and it has been renewed by later writers. In chlorotics a murmur thus generated is possibly sometimes best heard at the apex, but oftener over the fourth cartilage or adjacently, because the stethoscope is then immediately applied over the source of the murmur. There are many other explanations, plau-

sible enough, of these murmurs, such as irregular vibration of valves, irregular action of the musculi papillares, and in rare cases actual incompetency of the mitral or tricuspid orifice secondary to ventricular dilatation. The pulse in chlorosis is not always rapid, as is everywhere advanced. It is very often, indeed, slow, and suggestive of a state of hybernation, though easily excited into rapidity. It is often irregular, from moment to moment, both as regards fullness and frequency, and thus such as one would expect in anæmic dilatation of the ventricles. The excitement of examination makes the pulse irregular in its way, but sometimes produces no change whatever in it. Venous murmurs are certainly best heard in the right neck, and in most cases are audible on this side only. The effects of respiration on the *bruit du diable* are much disputed, but the statement of Hope, that respiration causes the "humming" to become "rushing," is probably correct. Inspiration favors the return of the blood from the veins, and thus brings this about. Curious changes in the venous hum may be made by modifying respiration. Clinical observation of the heart in chlorosis and allied anæmic conditions is of therapeutical importance. To meet the cardiac states mentioned, belladonna seems most suitable, its use being indicated by its known physiological effects, by its action in cases of fever, as asserted by Graves, and by the condition of the heart. It makes the pulse regular in force and rhythm, and increases the number of beats. Of course iron is the essential remedy, but many cases improved much more rapidly generally, while various troublesome symptoms at once disappeared, when belladonna was added to the prescription.

Salicylate of Soda in Enteric Fever.

In the *Lancet*, June 16th, 1877, Dr. MURCHISON has the subjoined notes of a case of enteric fever treated by salicylate of soda:—

The patient, a laborer aged twenty, who had always enjoyed excellent health, came under treatment on the eighteenth day of his illness; he had then had no diarrhœa nor delirium, and no medical treatment. He had headache, sleeplessness, furred, dry tongue, loss of appetite, great thirst, slightly distended abdomen, and slightly enlarged spleen. The bowels were acting about once daily. There were rose spots over the abdomen; the skin perspired freely; the temperature (1.30 P.M.) was 102.5° Fahr.; pulse 100, regular; respiration 26. At 8.15 P.M. the temperature was 104.8°; at 9.30, 104°; and at 10 P.M. 104.4°. He was then ordered the salicylate, twenty grains every two hours, increased, after the second dose, to thirty grains every two hours. At midnight the temperature was 105.6°. At 2 A.M. of next (the nineteenth) day it was 99.6°. At noon, when eight doses had been taken, the patient was rather deaf, and the medicine was ordered to be given every four hours. That day the temperature never exceeded 101.2°; on the whole the patient was better. At midnight he took the eleventh dose of the medicine. Next day (the twentieth) he took the twelfth dose, at 4 A.M.; his temperature was then 99.8°, and his feet felt cold. Shortly afterward he felt "muddled in the head." At 8 A.M., his temperature being 98°, he took the thirteenth and last dose. An hour afterward he vomited. His temperature during that day never exceeded 100.4°. Toward the afternoon he became delirious, and at 7 P.M. was very violent, shouting "murder," and insisting that his throat was about to be cut. He had to be restrained by two hospital porters. At 8 P.M., no urine having been passed for twenty-four hours, a catheter was introduced, but only a few ounces of urine came away. This contained one-fourth (in volume) of albumen, with granular epithelial casts and salicylic acid. At

midnight he was sleeping soundly and perspiring profusely. On the twenty-first day, at 9 A.M., he was rational; temperature 100.4°; urine still scanty. At 7.30 P.M. the temperature was 103.6°, and at midnight 104.4°. On the twenty-second day, in the morning, the patient was better, and had no headache nor deafness; he passed only seven ounces of urine in twenty-four hours. There were no rose spots visible. At 7.30 P.M. the temperature was 105.2°. Twenty-five ounces of urine had been passed in ten hours; the latter portion contained no albumen, but salicylic acid was still found in it. During the next few days the pulse was about 84; the temperature varied from 101.2° to 104.3°. The salicylic acid gradually disappeared from the urine, but a trace of albumen was again found, and then was lost. There was slight diarrhœa. On the thirty-third day the evening temperature was normal; the appetite gradually returned, and the patient left the hospital quite well on the fifty-eighth day. Dr. Murchison remarked that the case was a good one for testing the drug, as there was high temperature without any complication. The effect of the drug was to reduce the temperature as rapidly as it did in rheumatic fever, but when the drug was discontinued the pyrexia returned; and the case subsequently progressed as might have been expected if the salicylate had not been given. The drug induced violent delirium whilst the patient was under its influence, and the delirium ceased as the pyrexia returned and the effect of the drug passed off. The salicylate further caused albuminuria and almost suppression of urine. Temporary albuminuria had also been frequently seen in patients suffering from acute rheumatism whilst under the influence of salicylate of soda. Probably the cerebral symptoms were due to the suppressed elimination by the kidneys of the nitrogenous detritus of the blood and tissues. The salicylate of soda used in the case had been examined by Dr. Bernays, who had found it to be quite free from carbolic acid. The cerebral symptoms could not, therefore, have been due to any mixture of the drug with carbolic acid.

Yellow Fever: Its Treatment and Pathology.

Dr. BENJAMIN S. PURSE, M.D., of Savannah, Georgia, writes, in the *Medical Record*, November 3d, 1877:—

My experience during the epidemic of last year in Savannah, Georgia, confirms me in the "theory" which I published in the *Medical Record*, of March 1st, 1872, although the treatment therein advised I changed so far as regarded the particular kind of purgative used. When that article was written I was "fresh from college," and deeply imbued with the anti-mercurial notions at that time prevailing. Fortunately for my patients, a short experience proved that a mercurial purgative cannot be substituted.

Yellow fever cases may be divided into three classes, viz: 1. Those which terminate favorably without any of the grave symptoms appearing. 2. Those cases in which black vomit and black stools occur. 3. Those in which the nervous system becomes most deeply implicated, caused by the previous excessive use of alcohol. I have classed them in the order of their gravity.

I commenced my treatment invariably with a mercurial purgative, and found that a mixture of calomel and castor oil, ten grains of calomel into one ounce of castor oil, thoroughly mixed, acted within a few hours, and in a mild and efficient manner. This to be repeated, if necessary, within five or six hours. Immediately

after the purgative had been given, the patient was sponged over the entire surface of the body and extremities with—

℞. Tr. capsicum, ℥ij,
Alcohol, ℥vj. M.

and then wrapped up in blankets. This soon caused diaphoresis. Quinia, in ten-grain doses, was then given every hour until three doses had been taken; twenty grains of bromide of potassium were given with each dose of quinine. The quinia was repeated the next morning, giving the first dose at 5 A.M., and the last and third dose at 7 A.M. The following day twenty grains of quinia were given, in two doses, at the same hours.

In the majority of the cases the temperature was usually normal on the fourth morning. On that day the quinia was reduced to fifteen grains, to ten grains the next day, and then from three to five grains daily, until all danger of a relapse had passed. The bowels were kept open, at least one action a day required.

In the treatment of the second class, *i.e.* black vomit, I acted upon the theory which I advocated in the New York *Medical Record*, March 1st, 1872. I therein stated that it was caused by the inaction of the liver, which, unable to appropriate the blood received through the portal vein (the liver), became a mechanical impediment to the portal circulation, and as effectually so as a ligature around that vein. The capillaries continuing to pass blood into the veins which supply the portal vein, they become distended beyond their ability to resist, and they rupture at their weakest part, their capillary ends. The black vomit is a conservative effort on the part of nature, and those cases of black vomit which recover upon the expectant or do-nothing treatment would have died if the black vomit had not relieved the distended vessels. The pressure of the distended vessels, though a result, in its turn aggravates the cause. To this pressure alone I attribute the kidney troubles; they, through it, become congested, and if not relieved either by black vomit or purging, uræmic poisoning hastens a fatal termination. The stomach, the "great bugbear" in the disease, also suffers from the general congestion of the abdominal organs, and fortunately the mucous lining of the stomach and intestines, from their more intimate relation with the portal circulation, are the first to become congested. The stomach, rendered irritable by this congestion, in its efforts at emesis ruptures the over-full vessels, and black vomit respites, if it does not always save, the kidneys and other organs.

In the treatment of this stage of the disease I disregarded, if I may use the word, the gastrophobia which prevails among the profession, and pursued the only rational plan, by following the teaching of nature and relieving the congested vessels. I administered purgatives by mouth and rectum, always using the oil and calomel. My object was to evacuate the bowels as speedily as possible; to excite the secretions and excretions of the intestinal canal. If not previously done, I applied a blister to the epigastric region, and ordered the patient to be sponged with the capsicum solution every three or four hours.

In every case of black vomit so treated the vomiting ceased when the bowels were evacuated; but it was liable to recur until the biliary secretion was fully re-established, unless the bowels were kept open. The following is the result of this treatment: Whole number treated, sixteen; recovered and living after the epidemic, twelve; relieved of the black vomit, but dying within ten days after, of asthenia two; relapsed and dying with black vomit, two. I certified to the death of four

other cases of black vomit; but they were moribund when I saw them. These were among those cases in which the vomit is so profuse that the patient dies almost instantly.

The congestion of the kidneys, with the consequent albuminuria, was relieved by the treatment addressed to the liver, with the additional treatment for the kidneys, viz., bromide of potassium, in twenty grains, and sweet spirits of nitre, in drachm doses, alternately every hour and a half, in watermelon seed tea, and the application of hot fomentations over the kidneys. This treatment succeeded in all the cases under my care. I lost none with suppression of urine.

The third class was put upon the usual treatment: purgatives, applications of pepper, quinia, etc. In these cases, almost invariably, with the decline of the fever, symptoms of delirium would be manifested. The shock to the nervous system is so great in this fever (being particularly so in this type of the disease), that the patient is left in a collapsed condition. This is more or less marked in different cases. Anticipating this result, on the second day I commenced giving phosphorus, $\frac{1}{100}$ to $\frac{1}{50}$ of a grain, and extract nux vomica, $\frac{1}{4}$ of grain, in gelatine-coated pills, every three hours; and fed the patient with milk punch, beef essence, eggs, etc. Each day's experience more fully convinced me that if we kept the liver in action, we could almost feed the patient *ad libitum*. During the administration of the phosphorus the tongue becomes dry, and sometimes has a glazed, red appearance; a few doses of turpentine emulsion counteracts this effect.

If the liver is kept active from the commencement of the disease, black vomit cannot occur. We can go a little further, and anticipate the fever entirely, by the timely administration of a mercurial cathartic, followed for a few days with small doses of quinine.

I do not use any preparation of opium, except a few doses of paregoric in my first two or three cases. I consider opium to be especially objectionable in this disease, and it ought never to be used. Any medicine which checks the intestinal secretions is injurious. To recapitulate: the yellow fever poison acts directly upon the cell structure of the liver, paralyzing its functions. This paralysis of the liver, preventing the portal blood from passing through that organ, causes congestion of the afferent branches of the portal vein. If the congestion be not relieved either by nature (black vomit) or art (purgation) in time to prevent it, the kidneys and other organs become also congested. To prevent and relieve this condition, the secretions, particularly of the liver and intestinal canal, must be kept free. This is the most important fact to be remembered in the treatment of this disease. The black vomit will invariably cease as soon as active purgation is established. The physician must divest his mind of the gastrophobia so prevalent in the treatment of this disease. The stomach is not inflamed, but passively congested, and its irritability passes off with the congestion.

IV. LOCAL DISEASES.

(*a*) DISEASES OF THE RESPIRATORY ORGANS.

On Œdema of the Glottis.

The following case of this dangerous complication, given by Dr. M. LEFFERTS in the New York *Medical Journal*, August, 1877, illustrates the writer's diagnosis and treatment :—

J. L., a laborer, aged thirty, informs me that, three days ago, after exposure to bad weather, his throat began to give him pain upon swallowing, but, thinking that it was an ordinary affair, he paid no special attention to it, continued at his work, and allowed it to remain untreated. During the night of the third day, the dysphagia in the meanwhile having become progressively worse, he was suddenly awakened from sleep by a sense of obstruction to respiration, a feeling of fullness and choking in the throat, and great pain; and the remainder of the night was spent by him sitting upright in bed, in obtaining a sufficient supply of air for respiration, and in clearing the throat of the constantly-accumulating mucus and saliva, which only added to his difficulties. The next morning he came into my hands for treatment. The laryngoscope showed at once the cause of his dyspnœa, the entire left half of the laryngeal aperture being markedly œdematous; the left arytenoid, with its corresponding ary-epiglottic fold, was swollen out into a large, oval, soft mass, which pressed into and closed up entirely the posterior commissure of the larynx, overhung and diminished more than one-half its superior opening, and, together with the misshapen and tumefied epiglottis, one-half of which was alone implicated, afforded a very pretty illustration of the gradual march of the œdema, forming an œdematous semicircle, which, to all appearances, was rapidly progressing in extent. All parts of the larynx and pharynx, excepting those distinctly œdematous, were deeply congested, presenting, in short, the characteristic appearances of an acute inflammation. Scarification was immediately performed, the instrument used being the guarded laryngeal lancet of Türck—a double-edged, sharp-pointed knife, which remains concealed by a suitably-curved sheath during introduction through the mouth, and is only pushed forward and exposed by means of a slide upon the handle of the instrument under the operator's right forefinger, when the parts which it is desired to incise are reached. This done, the knife is again drawn back into its cover, and the instrument withdrawn from the mouth. The whole procedure, as here shortly described, takes place under the eye of the operator, the laryngeal mirror introduced into the fauces being held by the left hand, presenting a perfect picture of the parts and of the action. And here let me say, that an assertion which I have heard made, viz., that a patient suffering from an urgent dyspnœa will not, cannot, allow of a laryngoscopic examination being made, suffering and struggles for breath being too great, is not borne out by my experience. I have made, and expect to make many more, laryngeal examinations of patients while suffering from extreme difficulty of respiration due to various causes, and have yet to see one in whom an examination, if made with care, some dispatch, and a little skill, was not amply sufficient and satisfactory for all diagnostic purposes. As regards operative steps, it is a noteworthy fact that such patients are much more tolerant, and will aid the physician's efforts with greater fortitude, than those who suffer in many instances with the slightest and least dangerous of throat affections.

To return to the case. Four deep incisions were made into the œdematous tissues: two over the mass formed by the swollen arytenoid, and one over the epiglottis and ary-epiglottic fold respectively. And here again let me digress for one moment, to say to those who have never as yet treated cases such as the above by scarification, that the incisions are not usually made with as great ease as like incisions into like infiltrated tissues elsewhere are. The point of the knife does not pierce at once; the parts are apt to give way before it, unless unusually tense, and *considerable pressure* with a *very sharp* knife is necessary to effect the little operation with success. Again: the sacs or bladder-like swellings do not always collapse at once, as in one case that I report, as soon as they are relieved of their contents. They may do so slowly; they may not do it at all; the latter cases being those in which the contained serum is of a gelatinous consistency, and are, indeed, serious ones, which will probably demand a speedy tracheotomy. Upon this point Sestier's observations may be quoted as illustrative, exceedingly important, and interesting: "In twenty-three post-mortem examinations, after incision was made into the œdematous tissue, the fluid flowed, with little or no pressure, in ten. In six but little was evacuated on repeated pressure; and, finally, in seven there was no flow whatever, the material infiltrated being of gelatinous consistency, or appearing as if coagulated."

In our case, after incision, the serum flowed readily, and a few moments later the patient stated that the sensation of fullness and obstruction in his throat had in part disappeared, and that he could swallow easier; the improvement in respiration was almost immediate and very marked. Ordered steam inhalations, with tinct. benzoin comp. every hour. The following morning the patient was again seen. Inspection of the parts showed that the œdema had entirely subsided; general inflammatory redness, causing some dysphagia, still existed, but in turn disappeared within the following two days under appropriate astringent applications. Patient was then discharged cured.

The Circular Bandage as a Remedy in Thoracic Affections.

Dr. E. C. GEBRUNG reports, in the *American Practitioner*, August, 1877, his experience with this treatment. He says:—

I have recently observed, in the issue of your journal for January, 1877, a very able article by Dr. Joseph G. Rogers, under the caption of "The Bandage in Thoracic Diseases." This being the first corroboration in full I have met in print of this important therapeutic measure, which I, as the originator of this practice, published four years ago, I am highly pleased to see that Dr. R.'s results, as far as they go, agree with mine.

It is unnecessary to go to the dissecting-room for experimentation, whether or not bandaging the chest is admissible in certain diseases. Simply observe a patient suffering from pneumonia or pleurisy; how he clutches the painful part, and attempts to limit the respiratory movements by the contraction of the pectoral muscles. Now let the observer imitate that series of movements in his own person, and he will have the proof that the thoracic muscles will be set in such a way as to surround the chest much as the bandage does; the scapula becomes fixed, and all the muscles are put on the stretch. Were there no other proof, this alone would demonstrate the admissibility and the usefulness of the circular bandage. Yet how futile must be this effort at self-protection! The muscles and the will are soon exhausted, and the patient will give up to his fate. We have here nature's indication how to relieve pain, limit respiration, and promote and facilitate expectoration. The bandage ful-

fills these indications, one and all. Such was the reasoning which led me to the first application of this remedy. The experience of myself and others has since amply proven the correctness of it.

If this is so beneficial in unilateral pneumonia, why condemn it in double pneumonia? Is the sufferer from this dread malady more able to go unrelieved and unassisted than the one with the unilateral affection? Is nature's attempt to relieve not the same in both? The danger of limiting respiration, where there is already but too little of it, is greater in theory than in practice. The relief of pain and the facilitated expectoration are great factors for improving and not lessening respiration. It is my opinion that the coating of mucus on the small respiratory tract, and the clogging of the routes leading to it, with the inability of the sufferer to remove that mucus by his unaided efforts, cause the fatal termination much more frequently than the inflammation of the lung tissue. In fact, if I were allowed but one remedy in the treatment of these cases, I would surely select the circular bandage.

If, from my moderate experience, I am permitted to draw any conclusions, I should say that whenever we find a patient compressing, consciously or unconsciously, a painful or diseased part of his body, we should not hesitate in using artificial compression; first tentatively, then with firmness. Also, where deep pressure, slowly and gently applied, gives relief, there is an indication for this remedy.

All cases of pneumonia are certainly not equally benefited by the circular bandage. Those dependent on blood poisons must be treated by their appropriate remedies, to which the bandage will be an almost indispensable adjunct, as I have satisfactorily observed in the pneumonia complicating typhoid fever.

The chest bandage is the best and promptest expectorant with which I am acquainted. It produces this effect by transforming the thorax from a tube with elastic walls into one with rigid surroundings, so that each diaphragmatic succussion acts expulsively; and it has besides the advantage of leaving the stomach free for any other medication the case may demand. In pleurodynia, intercostal neuralgia, and angina pectoris, it has rendered good service; and its temporary application in the pleurisy of consumption, and during severe coughing spells in this disease, has frequently given very pleasing results.

I ventured to predict, in my first paper, that "still the field is not entirely gone over, and it is to be hoped that this contribution is only one of the many that the subject in question will suggest;" and it appears that I was correct, if I may rely on an opinion expressed in the St. Louis *Clinical Record* for April, 1877, that Dr. Sayre's plaster-of-paris bandage for Pott's disease and spinal curvature was suggested by my demonstration of the admissibility of circular compression of the chest, without detriment to respiration. His first attempt was made over a year after the publication of my paper. The objection may be raised that the necessity of substituting abdominal for the diminished thoracic respiration is disproved by his results, as he encases the abdomen as well as the thorax. This is more apparent than real, because the plaster-of-paris jacket is nowhere applied so tightly as the chest bandage. But if so, the result is detrimental; the patient complains of want of breath, and the apparatus has to be ripped open in whole or part.

An Improved Method of Performing the Radical Operation in Empyema.

Dr. E. Fletcher Ingals discusses, in the Chicago *Medical Journal and Examiner*, June, 1877, this subject, in the following manner:—

The removal of pus from the pleural sac by means of the aspirator, even though often repeated, is not likely to cure the patient; however, in rare instances recovery follows this method of treatment, therefore it is advisable to give it a trial.

As soon, however, as it becomes apparent that this procedure is not sufficient, the radical operation, or the establishment of an opening for free drainage and cleansing of the cavity, is indicated.

Frequent operations by means of the aspirator have not thus far been attended with satisfactory results, and although the entrance of air into the pleural sac is not a serious accident, still it leads to putrefactive changes in the pus, if this be not removed as fast as formed; and from several cases observed in the Roosevelt Hospital in 1873, it appears that the amount of pus secreted is much greater in patients where air is freely admitted than in those where it is excluded, another fact in support of the position of Drs. Hamilton, Bowditch, and others.

By the modification in the operation suggested in this paper, we secure the essential points insisted upon by nearly all who have written on this subject, viz., free drainage and the exclusion of air.

For the improved operation the following articles are required: A trocar, the cannula of which is of just sufficient size to allow the passage of a drainage tube; a piece of soft rubber for a valve, 2½ inches in diameter, such as dentists use for the rubber dam, excepting that it should be about twice as thick; a piece of rubber tubing (drainage tube) about three-sixteenths of an inch in diameter, and a foot and a half to five feet in length; an elastic bandage, two inches in width, long enough to reach around the patient's chest and pin; and a small ring, which, when slipped over the bent drainage tube, will hermetically seal it at the point of flexure.

The drainage tube should be perforated on the sides in three or four places near the extremity which is to be inserted into the chest. It should then be marked with ink at distances of about six and nine inches from the same end, so that when introduced we may know how much of the tube is within the pleural sac.

The operation is performed in the following manner: The patient being ready, the tube is filled with water, its distal end closed by the ring, and placed in a basin of water beside the bed. The trocar is thrust through the centre of the small piece of rubber which is to act as a valve, and this is drawn over the cannula. Having oiled the trocar, it is to be thrust into the chest at either of the points usually recommended for the operation.

As the stilet is withdrawn the thumb should be placed over the end of the cannula, to stop the flow of pus until the drainage tube can be reached. The tube is then pressed through the cannula for a sufficient distance, and the cannula is withdrawn; as it leaves the chest walls the rubber valve is slipped off upon the tube close to the surface of the chest. The extremity of the tube may now be opened under water, the cannula slipped off, and the pus allowed to flow.

As the stilet is withdrawn the pus escapes in a full stream, and during the passage of the tube through the cannula no air can enter, on account of the pressure of pus from within.

In this way the operation can easily be completed without the entrance of a single bubble of air.

After the tube is inserted an aspirator can be attached, or the pus may simply flow out through the siphon. The latter method is sometimes preferable, as the aspirator is liable to cause too great atmospheric pressure upon the expanding lung, and consequent rupture of some of the smaller blood vessels. After the pus has

ceased flowing, the cavity may be washed out with a one or two per cent. solution of carbolic acid, at 100° Fahrenheit, or the cleansing may be deferred for twenty-four or forty-eight hours. The latter method would probably cause less irritation than the former.

After the pus has been discharged, a slit should be made in the middle of the elastic bandage, a couple of inches in length, for the passage of the tube, and the bandage should then be pinned snugly about the chest over the rubber valve.

In the after treatment the pleural sac should be cleansed once or twice daily with a weak solution of carbolic acid. During the treatment, if the cavity ceases to diminish in size, other injections may be substituted.

In cleansing the cavity the end of the tube should be placed under water in a basin, which can be raised to any desired height. The fluid flows into the chest through the siphon and then out by the same means.

Between the visits of the physician the end of the tube may be left under water, to which a little carbolic acid has been added, or it may simply be bent upon itself and closed by slipping over it the little ring. Though the former method is preferable, the latter will sometimes be found necessary with restless patients. If the latter plan is adopted, the cavity should be cleansed twice a day.

For two or three days the soft tissues in the intercostal space grasp the tube firmly and keep the cavity hermetically closed, but at the end of this time the tube becomes loose in the opening through the chest walls, so that air would enter, or the tube would fall out, were it not for the piece of rubber which was placed on it when the cannula was withdrawn.

This rubber not only acts as a perfect valve, when held by the elastic band, to prevent the ingress of air, but also holds the tube in position with sufficient firmness to prevent its being withdrawn by any ordinary force. The tube may be still further secured, if thought best, by a bandage placed about the chest.

The slit in the elastic should be long enough to allow some movement of the bandage without traction on the tube.

The force with which the fluid flows into the cavity may be perfectly regulated by the height of the column of water in the siphon. As soon as the cavity becomes slightly distended the patient will complain of uneasiness or pain in the chest, and then the tube should be at once lowered to stop the flow.

As healing progresses, the size of the cavity may be accurately determined from day to day by the amount of water required to fill it.

This has the advantages over methods usually recommended, of occasioning but a trifling wound, and consequently slight constitutional disturbance from that cause; of preventing the entrance of air; of simplicity in the operation and convenience in after treatment; of painlessness after the soreness from the puncture has subsided; and of comfort and neatness for the patient. It is nearly as simple as paracentesis with the aspirator, and is attended with little if any more danger to the patient. It might be used in those unyielding cases of chronic pleurisy with serous effusion, where the cavity rapidly refills after paracentesis.

The Feet of Catarrhal Patients.

Dr. Thomas F. Rumbold, of St. Louis, Mo., in writing to the *Virginia Medical Monthly*, July, 1877, says:—

Cold feet predispose to colds in the head, throat and ears. It is almost useless to treat a patient for a catarrhal condition of these organs if the feet are not kept

rm. No external influence so certainly causes a congestion of the mucous membranes of the respiratory organs as cold and wet feet.

t is frequently the case, that wearing woolen stockings will cause the feet to perre; they are then liable to become cold. Should this be the case, a thin pair of ton stockings should be worn under the woolen stockings. It will be well for se patients who have cold feet, whether damp or not, to wear their stockings in s way, that is, to draw on a pair of woolen stockings over a pair of cotton stocks. Neither of the pairs need be very thick.

A good remedy for cold and damp feet is to bathe them at bedtime. For many rs I have advised my patients, when taking this bath, that they shou'd, after dressing, wrap a blanket around the body from head to foot, the room being warm, n sit on the side of the bed and immerse the feet in a sufficient quantity of water, ted to blood heat, to cover the ankles, having the blanket at the same time pped around the limbs and foot bath-tub.

The position on the side of the bed has two advantages: the patient, in being near bed, will be able to get under the bed-clothes without the loss of the warmed air closed around his limbs and body by the blanket. Again, in this position, the dy will be more erect than it would be if the person were sitting on a chair; conquently, more of the limbs will receive the warmed and moist air from the bath-b, two adjuncts necessary to successful foot bathing.

After the feet have been in the warm water about three minutes, they should be ised out of the tub, and one pint of "boiling-hot" water poured into the bath; e feet should then be immersed again about three minutes longer, at the end of nich time a second pint of hot water should, in the same manner, be added to the th, and, with the same interval, a third, fourth, or more pints should be added, ntil the water in the bath-tub is as warm as the patient can bear it. After the feet ve been in the water, in all, about fifteen minutes, they should be dried by being ell rubbed with a coarse towel, and then an inunction should be applied with conderable friction. Lastly, they should be covered with a pair of cotton stockings, ell warmed. The drying and anointing should be done while the feet are held ver the bath-tub and enclosed in the blanket. The patient should get into bed ompletely enveloped in the blanket. For many years I have used an ointment r the feet with and without bathing; it assists in preventing them from sweating nd from being cold. During the last two years I have employed "vaseline" as an nunction; it is far superior to any of the oils or cerates in common use.

By the time the feet are bathed in this way, the body will be in a gentle perspiation; this should be allowed to dry gradually, after which the blanket may be emoved.

If there is fetor from the feet, five grains each of salicylic acid and bromide f potassium, with one ounce of "vaseline," will, in a few bathings and anointings, correct this condition.

Plunging the warm feet in cool water immediately on getting out of bed in the morning has frequently a good effect.

A large majority of females fasten up their stockings by elastic garters. Girting the limbs in this way is very liable to induce cold feet, on account of impeded circulation, the veins being so much compressed by the garter that the blood cannot leave the limbs so readily as it should do, while the heat forces the blood to them through the arteries, whose walls are firm enough to resist the pressure of the garters.

Almost every patient will claim that her garters are not tight; yet most of them will acknowledge that when the elastics are removed at night the creases under their knees, caused by the constriction of the garter, are deep enough to bury half of the thickness of the fingers.

In order to maintain the hose in their place without the aid of garters of any kind, they should be pulled on over the stocking-knit drawers and fastened with tapes. Four of these tapes, about six inches long, should be sewed on the drawers, at about the middle of each thigh, one on the outer side and one on the inner side; also four tapes of the same length should be sewed, one on the outer and one on the inner side of the top of each stocking. The tying of the four pairs of tapes secures the hose in their place, and, as they are long enough to come above the knees, more of the limbs are then covered than when they are held up by the strangulating elastic or non-elastic garters.

Boots that are thin or tight, and shoes that are low in the ankles, should be avoided in cold or damp weather. Heavy, loose-fitting boots, with double uppers and soles—the latter made wide—are the proper coverings for the feet in cold or damp weather.

India-rubber overshoes should be worn in wet or damp weather only, and they should be removed from the feet as soon as the wearer enters the house.

Slippers should not be worn by either sex during cold or even cool weather. One of the ways in which a cold is *mysteriously* (?) contracted, is to exchange a pair of warm boots for a pair of low slippers. Those who do this forget that their feet and ankles have been protected all day, and that they have not only uncovered them, but placed them in the coldest stratum of air in the room. If they had taken the precaution to draw on over the stockings which they usually wear a pair of heavy woolen socks, the chances of taking cold from wearing the slippers would have been greatly decreased.

The Treatment of Diphtheria.

The severe epidemic of diphtheria which prevailed in Paris last winter gave rise to an interesting discussion at the Therapeutical Society on the best medical treatment in cases of croup and membranous sore throat.

M. CADET DE GASSICOURT compared the therapeutical value of the four principal recognized medicaments against diphtheria (chlorate of potash, cubebs, perchloride of iron, and salicylic acid), and gave the result of his observations during the years 1874, 1875, 1876, and 1877. In 1874 he treated thirteen cases of diphtheritic sore throat, with the result of ten recoveries and three deaths. Of the ten cured, five had taken chlorate of potash, three cubebs (after the formula of Trideau) and two tonic remedies. In 1875 almost all the patients were treated by chlorate of potash, viz., eight cases of sore throat and four of croup, of whom all recovered. These results, in appearance satisfactory, have not the importance the statistics give them, for the type of the disease in 1874 and 1875 had not a malignant character, and the sufferers were only slightly attacked. In 1876 there were seven recoveries and four deaths out of eleven patients; the four children who died were not treated, as they were moribund on admission to hospital. Of the seven cured, three had taken chloride of potash, two cubebs, and two tonics. In 1877 five children suffering from membranous sore throat were treated with the salicylate of soda, three of whom recovered and two died; and out of three cases of croup treated with salicylic acid and salicylate of soda, there were two recoveries.

M. Cadet de Gassicourt thinks that chlorate of potash is far from being a very efficacious agent against diphtheria, in spite of its evident superiority over all other medicines, as shown by the preceding statistics. He has a certain preference for it because it is more inoffensive than cubebs or perchloride of iron; though he also believes that tonics are necessary to sustain the vital powers. Caustics he believes to be dangerous.

M. René Blanche declared himself as no longer a partisan of cauterization, as it fatigued the patient and prolonged the disease. Chlorate of potash was the least injurious medicament, and tonic remedies were also necessary.

Certain Points in Diphtheria.

Dr. F. C. CURTIS, of Albany, sends the following communication to the Buffalo *Medical and Surgical Journal*, September, 1877:—

Diphtheria has attracted a good deal of attention in the medical journals and pamphlets for some time back, due, no doubt, to more or less prevalence of the disease in certain localities. In New York especially, it is known that a long-continued epidemic is prevailing, and from there, as from other places, a great diversity of views regarding this disease have been made public through the medical press, or in society reports. In Albany there has been no extensive epidemic for some years, although sporadic cases have been constantly occurring, which during the past winter have been more numerous, but not to be dignified with the term of epidemic, for the recently issued report of the city registrar, for the year ending April 30th last, shows but twenty-nine deaths from this disease out of a total death rate of eleven hundred and thirty-eight. Still we have had some experience with the disease.

I wish to speak of a few points only connected with diphtheria. Etiology is an uncertain subject, yet exactness is important here. It is a question of practical interest how much vegetable parasites or bacteria have to do in producing and keeping up the disease. The bacterian theory seems to be going out of fashion, but the earnest endorsement of it by Oertel and others renders it still worthy of respectful consideration. In the lengthy article in "Ziemssen's Cyclopedia," by Oertel, on "Diphtheria" (now written, to be sure, some time ago), he describes the various forms of these lowly organized vegetations found on the mucous membranes, one of which, the spherical bacterium or micrococcus, he considers characteristic of diphtheria. Of the other forms, all of them may be found present in any simple pharyngitis, and especially such as is attended with the formation of membrane, as the croupus, but the micrococcus is never seen, provided diphtheria does not set in. This spore possesses this peculiarity, that, existing along with other fungi, although in ever so small a quantity, it rapidly increases, grows vigorously, and soon overgrows and crowds out others and destroys them. In short, this extensive observer and experimenter tells us that micrococci are inseparable from the diphtheritic process, and without micrococci there can be no diphtheria. Taking this as a primary proposition—this existence and growth of a fungus on the faucial membrane—it is believed that the disease becomes constitutional by the absorption of these fungi—or, at any rate, of some septic matter—from this primary location into the system. Oertel says that the bacteria are absorbed, for he finds them in the blood vessels, filling them and mechanically damming them up; muscular fibres are crowded with them; the kidneys contain them in immense numbers, heaped up in the tubules and Malpighian corpuscles. How they produce their septic effect h leaves undetermined. Others, who allow that the disease becomes constitutional

absorption from the fauces, hold that it is a virus peculiar to the disease that is absorbed; still others think that it is not a specific virus, but a septic poison absorbed from the inflamed surface, which is not different from the poison of ordinary septicæmia. Whether this bacterian theory is correct or not I will not stop to argue, as it is not necessary to my purpose. It is an extremely materialistic view of the pathology of diphtheria, peculiarly German, and has many facts opposed to it, some of which Dr. J. Lewis Smith, in one of the most satisfactory articles I have read, specifies: the micrococci are found in localities where diphtheria has not occurred; they are even found on the gums of healthy persons; they do not affect the lungs, although they must reach them by inspiration as readily as the fauces. But whether the *materies morbi* is the micrococcus or something not yet determined, I believe the ground well taken that in the majority of cases it has its existence upon the fauces, that if it remains there it is absorbed into the system, and that its tendency is, when thus absorbed, to produce a fatal issue. I arrive at this conclusion from clinical deductions, having observed no case of recovery in young subjects, when the disease was well marked, in which a treatment on "general principles," or on the expectant plan, was pursued; and, on the other hand, about all have recovered who received local specific treatment from the start; and it is a point of very great importance in the study and treatment of this virulent disease, as to whether or not the virus can be destroyed *in situ*, on the surface of the body as it were, before it affects vital structures. It has been taught, and still is, that the main point of difference between croup and diphtheria is that the one is always local and the other always constitutional. Undoubtedly this statement is true, but is diphtheria essentially a constitutional disease from its inception, even though attended, as it usually is from the first, with headache and febrile action? May not these general disturbances be dependent upon the local pathological process? For to repeat, good results have only followed, so far as my observation has gone, where a remedy has been exhibited which, if not applied directly to the throat, was given with a view to its coming and remaining in contact with the affected surfaces for a time. I think that the reported success of various remedies given internally has been due to a local effect; there is hardly one of them mentioned as efficacious in the journals that we may not conceive as having a decided local influence, as, for instance, the hyposulphite of soda, which some regard as a specific. To be sure, there is a possibility of bracing up the system to so high a pitch that the effect of a poison may be resisted.

For snake bites the popular specific is whisky in large quantities, a constitutional treatment for a poison received locally, but so rapidly absorbed as to get speedily beyond local reach. But may it not be that in much the same way a curative effect was produced by quinine and large doses of alcoholics, which Dr. Alonzo Clark used to instruct us to rely on, the efficacy of the latter having been, he says, accidentally found out through a nurse giving in a short time nearly a bottle of wine to a child sick with diphtheria, improvement following? The view of Dr. Delafield, of New York, that, as I understand it, this disease is a compound one, like epidemic influenza, cerebro-spinal fever, and a few others, made up in its pathology of an essential fever and a local inflammation, may offer a way to reconcile the phenomena of the disease better than the various theories that would make it either strictly local or constitutional primarily. A point that bears against its being one of the acute infectious diseases, purely constitutional, and one which I do not remember to have seen enforced, is its frequent coëxistence with other acute infectious

diseases. It is well known to frequently graft itself upon measles and scarlatina. And in hospitals where hospital gangrene or puerperal fever is prevailing it is apt to come in as an unfortunate complication of recent operations. With scarlatina there seems to be sometimes a mutual modification, so that it is difficult to say which is the primary, essential disease. But whatever view we may take of the nature of the disease, my belief is that it is a poison to the system, whose natural tendency is to cause death, and that ignoring the local manifestation usually insures this result, unless the virulence of the disease or amount of the poison is small; in other words, the case a mild one, or on the other hand the subject strong to resist it, as we see in the case of adults.

Bearing on these points, as well as upon the anti-hygienic conditions favoring its development, I will relate the cure of a single family. About the middle of last December I went to see the child of an employé at the Rural Cemetery, living in the burying ground of the Jews, on the elevated ground just back of the cemetery. He had just lost a child with diphtheria, dying the day before I was called to see this one. Of the nature of the malady there was no question. My case was a child five years of age; she had been taken sick the day before. There was deposit on both tonsils about the size of a little finger nail, a thin pellicle, having the crescentic outline suggestive of parasitic development, and looking as if just under the superficial layer of the mucous membrane. This interstitial deposit is insisted on as characteristic by Virchow. Such an appearance as this shown thus early is never presented by any other deposit on the fauces. The cervical glands were a little swollen; the child had an apathetic look, and was disinclined to make any muscular effort. There were four other children in the family, two older, ten and twelve years old, and two younger, about four and one and a half years old. All of them had moderately inflamed throats and enlarged cervical glands, but no deposit, and they were all around and well. I directed the treatment recommended by Dr. J. Lewis Smith* to be at once instituted. For a local application this mixture: acid. carbol. gtt. x, liq. ferri subsulphat. ℥iij glycerine ℥j, to be applied every two hours with a moderately large, soft camel-hair pencil, which was to be washed out thoroughly after each use, and left in a glass of frequently-renewed water. Nothing was to be given to drink for fifteen or twenty minutes after the application. I also gave every four hours a small teaspoonful of potas. chlor. ʒiss tr. ferri chlor. ʒj, syr simplic. ℥ij. This solution smells distinctly of chlorine, which is the most perfect destroyer of disease germs that we possess. No drinks were to be given for a few minutes after each dose of this. I gave her a grain of quinine every four hours, and the same to the other children. Next day the membrane was thick, and was dark brown from the iron, which lay now on top of the mucous membrane distinctly. It had extended all over the tonsils and up into the posterior nares as far as could be seen. There was a vast amount of nasal discharge, thin pus. The child was docile, and the remedies had been faithfully applied. I directed them to be continued. Next day the edge of the white membrane could be distinctly seen coming down into both nostrils. The pulse was 110 and thready, and the patient was very weak. I took a small glass syringe, about the size of the ring finger, intended, perhaps, for a vaginal syringe, filled all the holes but the central one with wax, and directed a third of a teaspoonful of the mixture of carbolic acid and iron to be put into a small quantity of warm water, and injected into both nostrils once in three hours. She was disposed to gargle, and I gave for this a solution of chlorate of potash contain-

* Diseases of Infancy and Childhood, 3d Ed., p. 242.

ing carbolic acid. Whisky was prescribed, but was not taken largely, for the child, otherwise very tractable, could not be persuaded to take much of this. For two days now there was little change in the condition of the throat, the thick, leathery membrane continuing adherent, and no attempt was made to remove it mechanically. Then it began to come away freely on the brush, and in a little while was entirely off. The application, diluted, was continued at long intervals, but produced much pain. The child mended rapidly from grave symptoms, asthenia continuing for a long time, as well as the return of fluids through the nose on the attempt to swallow them. She also had strabismus, which, after a time, disappeared. My last prescription for her was citrate of iron and strychnia. A few days after this child was taken the next youngest began to complain, and her throat was found by her parents to present small spots of deposit, just such as seen on the other, only smaller. They immediately made applications of the throat mixture of her sister, using a separate swab, and the deposit developed no further, disappearing in a couple of days, and she had very little after-malaise. I only saw this deposit after it was stained with iron, and cannot speak certainly as to its character. I had given directions that upon the least complaint, if any deposit showed, the solution should be applied at once. About four weeks after the appearance of the disease in the family, the babe was taken in the same way. I only saw this case once, and found that it had the identical treatment of the first case. The deposit when seen was thick and circumscribed, the child showing but little constitutional disturbance. The treatment was kept up, and she made a good recovery. The father was taken subsequently, in April, and employed the same treatment as in the other cases. He recovered easily.

What I wish to illustrate by these cases is the fact that the treatment was almost purely antizymotic and local. I think I have said enough to show the nature and severity of the disease. What the treatment was in the case of the child that died I do not know, but believe it was simply sustaining. Others have used what might be called an antizymotic treatment, exhibited internally. Dr. Burton, of Fultonville, tells me that he has habitually used, and with remarkable success, a solution of hyposulphite of soda. We may assume that free sulphurous acid forms in this solution, and that this is the destructive agent of the disease germs. Such administration of medicines I should prefer to make in glycerine as a vehicle, to help its fixing on the throat. Chlorine is a better agent for destroying disease germs than sulphurous acid, being used for fumigation of houses infected with small-pox, in preference to sulphur fumes, and we should look for a good effect from it, though it has the disadvantage of being difficult to administer, except in minute quantity. If, on the other hand, however, it is the azone formed at the moment of the generation of chlorine gas that is the efficient agent, we should look for no effect except from a solution constantly generating chlorine. As to the value of carbolic acid as an antizymotic, it is not necessary for me to speak. It is well known that the mineral salts generally have a similar action, and the large doses of muriated tincture of iron recommended by some, or the iodo-bromide of calcium comp., etc., may all have had their effect, partially at least, in such a way. But theories of treatment should all be thrown aside, and empiricism made the test, and while we may not draw conclusions from a few cases, the experience of all help. Theory may avail to reconcile apparently conflicting experiences to each other. But withal, I must say that I do not believe we treat diphtheria to our best ability, unless we add quinine and whisky to whatever antizymotic is employed. The vital forces must be supple-

ented with all our power in this exhausting disease, especially when cases are not en at their very inception.

An interesting point connected with the cases in the family I have spoken of, is ow much their anti-hygienic surroundings had to do with the production of the isease. They lived in a graveyard on the back of a long, rolling ridge that is well rained; not far away is an abrupt ravine, through which was a small stream which ises outside of the cemetery, and runs through it. The wells of this family, and of nother near by, also in the cemetery, are thirty or forty feet deep, about the level f the creek bed. The water of both is bad, and that of the latter smells strongly f sulphureted hydrogen, which has, however, established its reputation as possessng medicinal properties, and visitors to the cemetery frequently carry it away. Dr. Willis G. Tucker had the kindness to examine for us specimens from these wells, and found them unfit for use, the one used by the family spoken of being especially bad water, having an offensive odor, and containing a large quantity of decomposable organic matter, ammoniacal salts, nitrites and chlorides, being also very hard, and holding carbonate and sulphate of lime and magnesia. The nearest graves were twenty-five feet away, the remains having lain there two years and upward. Large quantities of petrifactions have been found in old graves when dug open.

The creek water was not pure, but was better. The family has used their well water for years, and have been uniformly healthy, no zymotic disease affecting them. The only difference in circumstances is that the water is unusually low in the wells. Throughout the cemetery grounds there are numerous springs and streamlets, all flowing off freely, as they have a rapid fall. The water from them is used freely and constantly by the laborers. Diphtheria has not existed to my knowledge on the rising ground back of the cemetery, excepting in the family spoken of, but at the lower front of the cemetery, and along the Troy road, a good many cases have been occurring. No conditions favoring its development are to be found there, other than those mentioned, except that the ground is low and flat toward the river. Individual efforts to study up the etiology of disease, as well as the prevention of endemics and epidemics, cannot avail a great deal. It is most earnestly to be hoped that the time is not far distant when we shall have a State Board of Health and efficient local boards, to whom, among other things, it shall be required that every case of zymotic disease must be reported. This combination of efforts will then render efficient the work of individuals, and by means of it causes for epidemics may be discovered and removed. This prevention is earnestly to be desired, at least in connection with so virulent a disease as the one I have been considering.

Advantages of Position in Difficult Expectoration.

Dr. WILLIAM S. KING, Surgeon United States Army, in the August 4th, 1877, number of the *Medical Times* of this city, gives the following comments on the subject of position in expectoration:—

Whoever has been troubled with a cough attended with expectoration has probably been annoyed at times by the secretions floating up and down with the current of the inhaled and expired air, often clogging up the air passages and occasioning a disagreeable sense of suffocation, and may remember that when quickly stooping down for any purpose the offending matter has suddenly popped out upon the floor, thus giving immediate relief. By change of posture the law of gravitation has effected what might have otherwise required hours to accomplish.

As we are so apt to forget our experiences, my only object in this article is to

record the fact, and call attention to the benefit that may be obtained by position only in many cases, especially in difficult expectoration.

This may appear to be a trifling matter, yet when we consider how much a proper position, either in bed or out of it, may add to the comfort of the sick, its study may not be so unimportant as to be entirely overlooked.

The Value of the Cold Douche in Phthisis.

The London *Medical Record*, October 15th, gives an abstract of a paper on this subject by Dr. POGACNIK, of Vienna. This writer maintains the superiority of his plan, which is as follows:—

The patient on waking in the morning strips, and, standing on a dry cloth, sponges himself all over with water varying in temperature from 10° to 20° Reaumur (55° to 77° Fahrenheit) according to the temperature of the air at the time. He then rubs himself down with flesh gloves for about five minutes, completing the drying process by envelopment in a linen sheet. He returns to bed, and remains there from half an hour to an hour, well covered up, though not sufficiently to induce perspiration. While reaction is going on it is necessary that the lung movement should be reduced to a minimum.

Dr. Pogacnik was led to the adoption of cold water frictions in tuberculosis by observing their good effects on scrofulous glands, which he states diminished more rapidly under their use than under a trial of iodine or cod-liver oil, and he declares that his results in tuberculosis of the lung are not less favorable. The influence of this treatment is:—

1. To promote normal action of the skin.
2. To relieve congested states of the lung by derivation of the skin.
3. To harden the patient, and thus enable him to pass more time in the open air.

Increase of appetite and strength, with a lowering of the temperature, are stated to follow, but these improvements are not to be expected where the pulmonary lesions are very advanced, or where the blood is disorganized; but the treatment is not contra-indicated in hæmoptysis.

Brehmer has advocated the use of local douches for the same purposes, but Dr. Pogacnik claims the following advantages for his method:—

1 Cold frictions may be persevered with in hæmoptysis when douches are impossible.

2. They are more agreeable to patients.

3. Their influence is more prolonged, and therefore more likely to be beneficial.

4. They are easily procured, even among the poor, and while traveling, whereas douches can only be obtained in institutions and large establishments.

5. The douche necessitates walking exercise after its use, which exactly reverses the desired effect on the body, for by this the lungs, which have been relieved by the cutaneous reaction, are brought again into full movement instead of remaining comparatively passive, as is desirable.

Phthisis Arising from Syphilitic Infection.

Dr. FREDERICK ROBINSON writes to the *Lancet*, May 5th, 1877:—

Two distinct forms of lung affection which I am disposed to consider as syphilitic have come under my observation. In the first and less frequent, the greater part of the organ is engaged, and the disease appears primarily at the base; thence it extends to the whole lung posteriorly, as well as anteriorly, to the apex. The

other and more common class is that in which the complaint is limited to one or both apices. In either case the individual has passed through the stage of secondary syphilis, and the constitution is left free from outward evidences of such disease.

As regards the former condition, I admit there is little if any difference to be observed between it and ordinary chronic pneumonia. It has seemed to me that the lung is more extensively involved than in the latter affection, and that premonitory symptoms, local and general, are less apparent. There is little, if any, pyrexia, but slight rise in temperature, dyspnœa only on exertion, and no sputa. The organ is found to be in a state of consolidation more or less extensive, and remains so for a long, indefinite period. Ultimately recovery takes place.

In the second and more frequent form of disease the individual presents himself with symptoms which, at the first glance, appear to be those of ordinary chronic tuberculosis in the first stage, affecting one or both apices. Closer investigation, however, will detect some points of divergence. These are:—

1. The physique. The ordinary characteristics of a phthisical subject are wanting. The chest is well developed, and body fairly nourished.

2. The absence of constitutional irritation of a severe character. The thermometer rises but little above the normal standard. There is freedom from night perspiration, diarrhœa, and irritating cough.

3. The dullness on percussion is less pronounced, and less definable in extent. It more frequently affects both apices, and simultaneously.

4. The characteristics of tubercular sputa in the earliest stage are wanting. The patient is pallid, complexion waxy, and his appearance generally indicative of cachexia. More frequently than otherwise, he is sent to hospital by a non-commissioned officer of the company who has observed the man to be out of health. Were it not for such notice, the latter might consider himself well enough to remain at duty. His symptoms are elicited rather by close questioning than voluntary statement. On auscultation, loud, harsh inspiration, with expiratory murmur of the same character, are detected, or else tubular breathing, if the case be more advanced. Vocal resonance, more or less distinct, is always present. The pulse is frequent, but not so rapid, perhaps, as in ordinary phthisis. There may be no sputa, or else a little frothy mucus is hawked up from the throat rather than expectorated.

Amendment shows itself in a gradual restoration of the breath-sounds to a normal condition, the constitution recovering tone and vigor. As regards the greater prevalence or otherwise of hæmoptysis, I am not yet in a position to offer a decided opinion.

The chronicity—stationary condition—of both forms of syphilitic lung disease, together with the absence of prominent and distressing constitutional symptoms, are noticeable features which tend to aid the diagnosis.

Any reliable grounds for predicating the existence of small gummatous masses in the lung, I must confess my inability to recognize. A hap-hazard guess, founded on the presence of external deposits of the kind coincident with an impaired function of the respiratory organs, dry cough, dyspnœa, etc., might be made as regards their early formation.

The treatment which I have found most efficacious has been a combination of cod-liver oil with iron in various forms, particularly the iodide, iodide of potassium, mild counter-irritation by iodine, wine, and a liberal diet. I have not considered myself justified in administering mercury, by any good effects from the drug having been previously obtained.

Case of Empyema—Treatment by Carbolated Iodine Lotion.

J. FULTON, M.D., M.R.C.S., England, L.R.C.P., London, writes to the *Canada Lancet*, October, 1877 :—

In the number of this journal for October, 1875, is reported a case of empyema occurring in a man aged seventy years, under my care, in which recovery took place; and I now have to report a similar case occurring to a patient twenty-three years of age, which resulted in death. The fatal result, however, was not immediately due to empyema, but rather to the occurrence of an obstinate diarrhœa, with which the case was complicated, and which resisted all efforts at treatment until the patient was completely worn out by the long-continued and exhaustive discharges from the bowels. The following is a history of the case :—

William H., age twenty-three; born of healthy parents; a lather by trade; mother, brothers, and sisters all living and healthy; father died of pneumonia; says he had gonorrhœa and chancroid; general health good up to the time of attack; no visible signs of constitutional syphilis; slightly addicted to intemperance; tall, muscular; weight about 160 pounds. On or about the 24th of last May he caught a severe cold by lying on the damp grass, and was soon after seized with pleuritic pain in the right side. When I first saw him he was suffering acute pain in the right side, with difficulty of breathing, pulse 120, skin hot and dry, and symptoms indicating acute pleuritis of the right side. I put him under appropriate treatment, and in a short time he was relieved; he breathed more easily, and in a few days began to sit up. There was evidence of effusion in the pleural cavity on physical examination, but there was very little difficulty in breathing, and the patient was able to assume the horizontal position. There was no bulging of the intercostal spaces, nor increase in the measurement of the right side of the chest. The symptoms were not urgent, and I fully believed the absorbents would in a short time remove the fluid. With that end in view I placed him upon iodide of potassium combined with diuretics, and gave him occasional doses of sulphate of magnesia, compound jalap powder, etc. Blisters were also applied to the side of the chest, and repeated at intervals. Under this treatment he seemed to improve for the first eight or ten days, after which the fluid increased, and at the end of a week or ten days the chest was completely filled. The patient was now obliged to remain in the upright position. There was only slight bulging of the intercostal spaces, and no appreciable increase in measurement of this side of the chest. The pulse was and had been for some time from 96 to 100. At this juncture I proposed tapping the chest in order to get rid of the fluid, to which the patient consented, and desired to have Dr. Russell, of this city, called in consultation. We accordingly met on the 18th of June, and, after a careful examination, he coincided with me in the propriety of paracentesis, which was done by means of an aspirator, and twenty ounces of lemon-colored serum were removed. This gave immediate relief, and the patient improved for a few days, but the fluid began to reaccumulate, and in about eight days the chest was as full as before, when I again introduced the aspirator needle, and to my astonishment withdrew fifty ounces of creamy-looking pus! Although every precaution was taken to prevent it, some air may have gained entrance during the first operation. This operation gave great relief, and the patient was better and continued so for about a week, during which he was able to get up and go out once for a drive. The fluid, however, soon began to accumulate again, and caused him more distress than before. Long before the chest was half full of fluid, he com-

plained of pain and tenderness in the abdomen, chiefly in the epigastric and right hypochondriac region, so much so that I began to fear pointing through the diaphragm into the abdomen. I now decided to employ drainage by the introduction of an india-rubber tube in the chest. Dr. Russell was again called in consultation, and a tube was introduced between the eighth and ninth ribs, below the angle of the scapula, and allowed to remain. About thirty ounces of foul-smelling pus escaped on the introduction of the tube, and on the following day about as much more was withdrawn. The tube was introduced by means of a trocar and cannula, the rubber tube having been selected to fit exactly the cannula, through which it was slipped after the trocar was withdrawn. The tube used was about fourteen inches in length, two inches of it being within the chest. It was prevented from slipping out by tying a string around it close to the chest, sufficiently firm to prevent slipping, and making it secure by strips of adhesive plaster. The tube was tied at the extremity, coiled up, and retained *in situ* also by adhesive plaster after use. Through this tube the pus was withdrawn, and the cavity washed out once every day with a lotion containing carbolic acid and tincture of iodine* in the proportion of half an ounce of each to the pint of warm water, a combination which had been so successfully employed in the former case. This process was accomplished by means of a Davidson's syringe attached to the extremity of the tube. Under this treatment the formation of pus rapidly diminished, the lungs began to expand, and great hopes were entertained of his speedy recovery. The internal treatment consisted of tonics of quinine, iron, and strychnine, together with syrup of the iodide of iron, cod-liver oil, and suitable diet. A few days after the tube was inserted diarrhœa set in, and continued with more or less severity until his death, which took place on the 13th of August. The diarrhœa was preceded by tenderness in the iliac regions, and was attended, more especially toward the close, with discharges of pus, no doubt from extensive ulceration of Peyer's glands. There was no hemorrhage. The discharges from the bowels were also very offensive. The condition of the chest after the introduction of the tube was, on the whole, very satisfactory, and but for this untoward complication the patient would in all probability have made a good recovery. One strange feature in the case was the uniform character of the pulse, which varied very slightly during the whole progress of the case, never reaching higher than 120, generally about 112 to 115. He was also able to take a large amount of nourishment for a person in his condition. Every known means was resorted to in order to arrest the diarrhœa, but without avail. It seemed from the very outset to be beyond control, and its continuance produced great emaciation. He was reduced to a mere skeleton before his death. He also suffered very much from dysuria, especially at the outset of the diarrhœa, and near the close of his trouble the throat became extensively ulcerated, with loss of voice. The posterior surface of the pharynx, the fauces, and the soft palate were covered with superficial grayish ulcers. Tincture of iodine was applied to the throat every second day, supplemented by a wash of liquor sodæ chlorinatæ in the interim, with marked benefit. There was no post-mortem examination.

Remarks.—The plan of treatment adopted in this case and in the one previously reported has many advantages over the ordinary drainage tube. The tube is very easily introduced, and fits the opening so tightly during the first few days that it can be made entirely to exclude the air from the chest during a most critical period. This is accomplished by allowing the pus to flow under water, and after a sufficient

* This lotion is perfectly transparent; the carbolic acid bleaches the tincture of iodine.

quantity has been removed the extremity of the tube is tied firmly, coiled up, and retained *in situ* by strips of adhesive plaster. The whole of the pus need not and should not be removed at once. If any signs of faintness occur during the withdrawal of the fluid, the tube can be tied and further removal discontinued until the next or the second day. The tube becomes loose in the chest, and air passes in by the side of it, but not until the lapse of several days, when the greatest danger is passed. To the extremity of the tube a Davidson syringe can be easily attached, and will be found indispensable in emptying the chest of contained pus, or of pumping in fluid for the purpose of washing out or disinfecting the cavity. In both these cases this apparatus was used for removing the accumulated pus from day to day, and for the subsequent washing out of the chest with the carbolated iodine lotion.

Inhalations in Asthma.

Dr. J. G. WESTMORELAND writes to the Atlanta *Medical and Surgical Journal*, October, 1877:—

We, some years ago, determined to test the effects of direct applications to the respiratory mucous membrane in asthma. Accordingly, about the 1st of September, for a case of "hay fever," the inhalation of iodine was advised. The subject, a lady thirty-five years old, and the mother of four children, had suffered regularly with the disease during the whole month of September for a number of years. With the view of preventing the annual return, she had taken daily about ten grains of quinine for a week. As usual, however, the symptoms were fully developed by the 1st, and the treatment was commenced about the 5th of September. One-fourth grain of morphine was given, and in an hour one grain of iodine was inhaled, by placing the remedy in a wide-mouthed small vial, sufficiently heated to change it into fumes, and inhaling through the nostrils. Notwithstanding the anodyne effect of the opiate, an unpleasant paroxysm of coughing was produced, leaving the patient much relieved from the coryza and dyspnœa, however, during the succeeding twelve hours. The inhalation was repeated every twenty-four hours for several days, and afterward less frequently for two weeks, with the effect of preventing any decided asthmatic paroxysms, during the night or day, as had been her habit.

Some bronchial and nasal trouble continued for three weeks, but such decided relief was afforded that the lady is delighted with the prospect of being rid, in future, of this distressing and unwelcome annual visitor.

More recently, a case of the same general character came under my observation, but had advanced so far toward the time of its spontaneous termination that no certain and decided results can be claimed. The inhalation of iodine was had daily, however, and was followed by complete relief from the usual nightly paroxysms of asthma.

Patients suffering from this disease, and their physicians, generally feel disinclined to embarrass the already difficult breathing with the means proposed above, but my experience in the use of iodine inhalations, not only in asthma, but in the treatment of ordinary chronic bronchitis, catarrh, etc., justifies the opinion that no fears need be had of producing injurious effects; and by preparing the patient with an opiate an hour previous to the inhalation, the unpleasant cough attending it is measurably prevented.

This is the only local alterative or catheretic remedy that can be readily applied to the bronchial mucous membrane, and this the only form in which iodine can be inhaled in sufficient degree of concentration to relieve chronic disease permanently.

The Application of Oil to the Surface of the Body in Catarrh.

Dr. Thomas F. Rumbold, of St. Louis, Mo., says, in the St. Louis *Medical and Surgical Journal*, September, 1877:—

During the last three years, I have prescribed the application of an inunction to the surface of the whole body of every catarrhal patient who was thin in flesh, and whose skin was dry and rough. Such patients are very liable, partly on account of this dry condition of the skin, to "take cold" during those seasons of the year in which there are sudden and great changes of temperature; I have repeatedly noticed that these applications materially assist to increase the warmth of the body, and decrease the cold rigors that course up and down the back.

The beneficial effects following the inunction of children have been, as a rule, more marked than in adults. I think that this difference is mainly owing to the applications being made with more regularity, and with greater thoroughness on the former than on the latter.

I was first led to try these applications, in 1859, by reading an article written by the late Sir James Y. Simpson, of Scotland. He contributed the results of his investigations on the "External Use of Oil" to the Edinburgh *Monthly Journal of Medical Science*, October, 1853. This paper is republished in his works on obstetrics, second series, page 441.

From the thoroughness of the observations, and the very satisfactory results following the applications of the oil externally, I resolved to try this means for the amelioration of a case that I then (1859) diagnosed as acute phthisis. The effect of the applications was all that could be desired. The profuse night sweats were at once lessened, and after the fifteenth nightly inunction entirely checked. The patient slowly recovered, made a trip to Pike's Peak, at that time a place of great attraction in the West, and at present is living in Wisconsin, in robust health.

I employed the applications on several other patients, and whenever they could be induced to make the inunction in a proper manner the benefits were marked; but the impossibility of procuring an oil that did not become exceedingly offensive on the body of the patient compelled me to desist from using it, except in cases of children. As these little sufferers remained in the house, the disagreeable smell offended the nostrils of their parents only, who were ready to undergo almost any discomfort so that it pointed to the patients' recovery.

As we now have an article, called by the arbitrary name of "cosmoline," a product of petroleum, which is inodorous, and remains so while on the body, and which may be applied to the skin of the most delicate patient, not only without the least discomfort in any respect, but causing a pleasurable sensation, the time for reviving the practice of making external inunction has fully arrived, not to be again driven into obscurity by the disgust of the patient for the disagreeableness of the agent applied.

The next objection to the practice is its tediousness, as it requires the daily dedication to it of the ten or fifteen minutes that are usually required to perform the inunction fully and perfectly.

The best means of applying the inunction is with a woolen rubber. This rubber is made of ten or twelve thicknesses of flannel; these layers are stitched on the face side of a cotton glove; in this way it is more easily held by the person making the application.

About one teaspoonful of the cosmoline is spread on the woolen rubber, and after it is once saturated with the inunction, and held close to the fire until it is quite

hot, it is then applied in this hot condition to the surface of the body, with considerable pressure and with rapid motion.

The room in which the inunction is applied should be warmed to about 90° Fahr. All of the clothing of the patient should be removed except the stocking-knit drawers, and stockings. The exposed portion of the body and the arms should be well rubbed with the hot woolen rubber upon which the cosmoline has been placed. The rubbing should occupy from three to seven minutes on an adult, and half this length of time for a child. At the completion of the anointing of this part of the body, the stocking-knit undershirt should be put on, the drawers and stockings removed, and the remainder of the body treated in the same manner, occupying about the same length of time.

The immediate effect of this application on all individuals who are thin in flesh is the production of a sensation of warmth over the whole of the body, the feet and hands included, particularly so if these extremities have been habitually cold. The sensation of cold chills coursing up and down the back, between the shoulders, is soon arrested, and if the patient has been subject to night sweats, these are soon abated or they will entirely disappear.

Of course, the effect of the friction is to redden the surface, by increasing the circulation, and thus induces a warmth of the body, but I believe that it is due to the inunction that this warmth is made permanent. The following experiment, which I have had my patients try quite a number of times, indicates that the permanency of the warmth is owing to the presence of the cosmoline, viz.: To rub one extremity with a hot flannel alone, and another with a flannel that had the hot cosmoline on it. The extremity having the anointment applied to it remained warmer during the day than the one rubbed with the hot flannel only.

(*b*) DISEASES OF THE CIRCULATORY SYSTEM.

Angina Pectoris, and Its Treatment with Nitrite of Amyl.

Dr. GEORGE JOHNSON, F.R.S., writes to the *British Medical Journal*, June 23d, 1877:—

I believe that we have as yet no data which will enable us to give a complete explanation of the pain of angina pectoris. Whether it be a pure neuralgia with consequent inhibition of the cardiac contractions, or a result of cardiac muscular cramp, or of over-distention of one or more of the heart's cavities, or a combination, in some cases at least, of two or more of these conditions, must remain at present a matter of doubt. It is agreed on all hands that the pain is often agonizing, and that it often radiates into neighboring sensitive nerves, more especially those of one or both arms. It is a fact ascertained by experiment, that electrical irritation of the central end of a mixed or a sensitive nerve, such as, for instance, the sciatic or the trigeminal, not only causes severe pain, but also excites, by a reflex influence through the vaso-motor centre, a general contraction of the arterioles, with resulting high arterial tension. (See Vulpian, *Leçons sur l'Appareil Vaso-Moteur*, tome i, p. 237, etc.) I, therefore, venture to suggest that the high arterial tension, when associated with angina pectoris, is a secondary reflex result, and not the primary cause of the cardiac agony; and, further, that the remedial efficacy of the nitrite of amyl is due to its remarkable influence over some forms of neuralgia, and not to its relaxing effect upon the arterioles, except in so far as its anti-neuralgic power may depend upon its influence on the arterioles. My theory is that, in addition to the centripetal nervous influence which causes the pain of angina, there is an influence reflected

from the nervous centre through the vaso-motor nerves, and thus exciting a more or less general contraction of the arterioles. It is probable that the peripheral arterial resistance, although not the primary or the main cause of the pain, yet adds to the distress and danger of the paroxysm. We have no evidence to prove that in any case of angina there is a general arterial contraction. It may be that the arterial contraction, like the pain, is limited to one or both arms.

A true theory of the relationship between angina and the arterial contraction, and of the manner in which the nitrite of amyl affords the remarkable relief which it often does, is not without practical utility, more especially as a guide in the selection of cases which are suitable for the employment of the drug. One of the most striking examples of great and permanent relief by the use of nitrite of amyl is afforded by the case of Dr. Herries Madden, of Torquay, as recorded by himself. (*Practitioner*, 1872, vol. ix, p. 331.) Dr. Madden states that for a considerable time he had hesitated and neglected to employ the nitrite of amyl, in consequence of his belief that it was suitable only in those cases in which the face is pallid during the paroxysms. "As mine was flushed," he says, "I dismissed from my mind all thoughts of trying it, and paid the penalty of hasty conclusions in the shape of a large amount of acute suffering." The result of a first trial of five drops inhaled during a severe paroxysm "was truly wonderful. The spasm was, as it were, strangled in its birth; it certainly did not last two minutes, instead of the old weary twenty, and so it continued. The frequency of the paroxysms was not diminished for some time; but then they were mere bagatelles as compared with their predecessors. Under these improved circumstances, strength gradually returned, the attacks became less and less frequent, and finally ceased." Now, in this case, although the relief from pain was associated with the usual evidence of the physiological action of the drug in relaxing the arterioles, the flushing of the face during the paroxysm forbids the conclusion that a general contraction of the arterioles was the cause of the cardiac distress, and that the relief was due to relaxation of the arterioles.

Dr. Talfourd Jones has given some good illustrations of the therapeutic value of the nitrite of amyl, not only in relaxing spasm, but also in rapidly relieving neuralgic pains. (*Practitioner*, 1871, vol. vii, p. 213.) Dr. Jones' experience has been confirmed by other clinical observers.

A few weeks since, I was consulted by a lady who for a fortnight had been suffering from severe facial neuralgia, which had resisted various remedies that had been employed before she came under my care. I advised her to drop five minims of nitrite of amyl on blotting-paper, and inhale the vapor. The pain was rapidly and completely subdued. In a few hours it returned in a milder degree, and it was again promptly removed by the amyl vapor, and after three or four repetitions of the dose the cure was complete. It would be interesting, and it might be instructive, to observe whether, during a severe attack of facial neuralgia or sciatica, there is any evidence of contraction of the arterioles, with resulting tension of the arteries.

(c) DISEASES OF THE ORGANS OF DEGLUTITION AND DIGESTION.

The Dietetics of Dyspepsia.

In a communication to the *Medical Press and Circular*, July, 1877, on dyspepsia, Dr. ROBERT FARQUHARSON has the following remarks on the dietetics of the disease:—

Common sense and the application of ordinary physiological principles will often

prove sufficient to lead us on the right track, and there is assuredly no lack of carefully constructed dietaries adapted for every age and condition and emergency of health and disease. We must, of course, beware how we turn our patients into mere hypochondriacs by impressing upon them too many regulations, and directing their minds so forcibly upon their digestive organs that severe functional derangement may possibly run at last into organic disease. We know, or ought to know, the influence of what has been well called expectant attention upon the organs of the body, and how running the heart or brain or stomach perpetually into prominent mental consideration almost certainly sets something wrong. Therefore, we may not infrequently let people prescribe the main features of their diet scale for themselves, but on several points, when derangements of nutrition supervene, we must interfere, and I will only venture to refer to three points.

First, the indigestibility, under certain conditions, of fluid forms of diet. We shall often make a good hit in private practice by remembering this, and stopping the supplies of milk and beef tea and nutritious slops with which the victims of weak digestion are often drenched. Cut all this away, and allow only compact and moderate allowances of dry solid food, and we will find marvelous improvement and great development of faith. We will find that the nausea and flatulence and want of appetite will disappear, and a fresh era of health set in.

Secondly, we have to consider in how far dyspeptic symptoms are originated or kept up by an intemperate use of meat. The experience of several eminent vegetarians, who recently favored a sister society with a sketch of their principles and practice, show that the highest development both of brains and body is thoroughly consistent with total abstinence from flesh. We know that the blood overloaded with nitrogenous products is liable to engender the development of gout and rheumatism and other disorders, and Parkes has shown how an exclusively flesh diet will give rise to dyspeptic symptoms, with a tendency to papular and pustular eruption, foul tongue, intensely acid urine, and great mental depression. We see cases approaching to this in the servants of the wealthy, who are allowed to eat meat four and even five times a day, and in whom we observe a peculiar, pasty, greasy complexion, a dull eye, loaded tongue, sluggish bowels, and great inaptitude for exertion.

An eminent surgeon recently gave an interesting sketch of his own experience in this direction. About a year ago, he told his audience in St. George's Hall, one Sunday afternoon, he felt himself breaking down, his sleep impaired, his energy of body and mind lessened, he was easily tired, and could no longer do a long stretch of work with ease. His friends thought him overworked, and counseled him to live well, but the more closely he followed this advice the worse he grew, and he began to fear that his best days had, indeed, gone by.

Coming now under the hands of an eminent physician, quite a different aspect was given to the case. You are eating, said he, a great deal too much. Your nervous energy is largely used up in your work, and is not sufficient for the additional strain placed upon it for your present digestive purposes. Eat much less, and especially much less meat; and on complying with these instructions the patient speedily lost his bad symptoms, regained even more than his old power of work, and since that time, as he graphically expressed it, he has never even known that he has a body.

Now, even although we may not absolutely accept the physiological explanation here given, there can be no doubt about the fact that too much meat was being here

consumed, and that a reduction in the diet scale was speedily followed by the best results. Surplus nitrogenized material merely undergoes retrograde metamorphosis, becoming transformed into various secondary products, and injuriously oppressing liver and kidneys. In such cases we generally find the urine very acid, of high specific gravity, and either containing a large excess of urea, as pointed out by Dr. Fuller, or loaded with crystals of oxalate of lime, and this will be another aid to diagnosis, and another hint that too much animal food is being consumed.

But the other dietetic extreme may also be productive of derangement, and the great bulk and somewhat heating and irritating quality of such a diet as oatmeal is productive more especially of flatulence and tendency to diarrhœa. It is a mere truism to say that a proper blending of both these classes of food is requisite to sustain large masses of men under the ordinary conditions of life in full health and complete efficiency.

Thirdly, and to conclude, one word about tea. Now, a brief visit to any of our out-patient rooms will convince us of the full extent to which the evils of this substance are recognized, and we see physicians and clerks vying with one another in their efforts to stamp out the perilous practice of tea drinking. Now, many patients will tell us quite spontaneously that tea causes pain and flatulence, but to others, again, its sudden withdrawal is a real and serious deprivation. We all know its marvelous restorative powers; how it removes fatigue and stimulates nervous energy, and even seems to supply the want of food, or at least deadens the cravings of appetite. Are we, then, to deprive many poor half-starved women of their only solace, and will not the remedy or the remedial necessity prove worse than the disease itself? Now, in considering this question, we are at once met by the undoubted fact that we know very little about the action of tea itself. Physiological inquiry has elicited some experimental results of the administration of the alkaloid to the lower animals, and we know that strong tea will prevent sleep and cause palpitation and many uncomfortable nervous sensations. But in the case of the poor, who suffer most from excessive tea drinking, the active principle of the plant may practically be left out of consideration.

A Case of Splenic Leucocythæmia.

Dr. GEORGE S. STEBBINS, M.D., of Springfield, gives this case in the Boston *Medical and Surgical Journal*, July 19th, 1877:—

G. H., aged forty-two years, resided in the South seventeen years, from the age of twenty to that of thirty-seven, during the last two years of which he suffered more or less continuously from fever and ague, and in 1861 he was confined to his bed for several months, from the effects of malarial poisoning. For many months subsequent to this attack he was afflicted with a severe and very troublesome cough, attended with almost constant headache.

In 1872 he first came under my care for a severe pain in the region of the left hypochondrium, extending to the left shoulder. The character of the pain simulated neuralgia, and promptly yielded to the tonic and sedative remedies frequently resorted to in that malady.

During the period from 1872 to 1876, he was a victim of what he styled "bilious attacks," which were generally characterized by torpidity or congestion of the portal circulation, headache, constipation, loss of appetite, slow pulse, slightly furred tongue, and general malaise.

He was taken quite suddenly, about midnight, in March, 1876, with a severe pain in the right hypochondrium, and called in the nearest physician, who succeeded, after a time, by use of vigorous measures, in relieving him of his intense suffering. On the following day his physician detected a considerable swelling over the lower border of the liver, tender and painful on pressure.

It was his opinion, as well as that of the consulting physician, that it was a case of abscess of the liver, which they proposed to aspirate on the succeeding day. Previous to the hour appointed for this procedure, the external tumor suddenly collapsed and disappeared, and as its subsidence was soon followed by a profuse and intensely offensive discharge from the intestines, it was supposed to have discharged its contents into that channel.

Just what the tumor was, whether a suppurating gall-bladder, or an abscess proper, or something else, was not satisfactorily determined.

Two months later, in May, 1876, the patient began to complain of "fullness" and tenderness, and apparent hypertrophy of the spleen was observed.

During the succeeding summer and autumn the sense of oppression, tenderness, and the enlargement of the organ growing more and more marked, in obedience to the advice of friends he consulted a physician of Boston, under whose care he remained for several months. The treatment carried out by him consisted more especially of more or less frequent injections of ergotine into the spleen, which were followed by pain of greater or less severity, sometimes intense and continuing for several hours, attended with vertigo and more or less syncope. The direct effect of the injections upon the spleen was a slight diminution in the size of the organ. It was so much enlarged that its lower border reached the point about midway between the crest of the ileum and the pubes, and laterally beyond the median line. The enlargement was uniform, the natural contour of the organ being perfectly maintained.

On February 28th, 1877, I was summoned, and found him confined to his bed with the following symptoms: extreme vertigo and nausea on any attempt at moving or raising his head; great distention of veins of the head, neck, and upper extremities; face and eyelids slightly œdematous; pulse medium, full, slow, and soft; temperature 99°; tongue a little coated, but very dry; urine scanty and high-colored; bowels constipated; occasional chills, followed by slight febrile reaction; great thirst; and a most insatiable craving for food of any and every kind.

The treatment resorted to was a purgative dose of calomel, followed by saline laxatives in doses sufficient to insure regularity of the bowels, after which a tonic and gently stimulating course of treatment was adopted, combining phosphorus, quinine, iron, and brandy. For three or four days the giddiness and nausea considerably abated, after which it increased in severity, when, on about the ninth day of his illness, hemorrhage from the stomach began, which persisted until his death, forty-eight hours later. At intervals of from one to three hours he would vomit blood in quantities varying from a gill to a quart. He lost in this manner almost the entire blood in his body. There were dark, tarry, bloody stools.

The autopsy revealed the following: the spleen was found to weigh sixty-eight ounces, and had pressed upon the greater curvature of the stomach so firmly as to cause a well-marked indentation into the substance of the spleen. The substance of the organ was quite hard or firm, somewhat mottled, and the Malpighian corpuscles were quite prominent. The liver, which did not extend much if any below its normal level, was found greatly thickened and enlarged antero-posteriorly, and, like

he spleen, had been producing pressure upon the other extremity of the stomach. There were no evidences of abscess of the liver, as it was surmised there would be.

The mucous membrane of the stomach was softened, and the walls of the organ emarkably attenuated. There was but very little blood in any part of the body ave in the stomach, which was nearly full. The blood was of a dark, muddy, chocoate color, so well described by Trousseau. The structure of the liver was normal in ppearance. The diminution of the red and great increase of the white blood orpuscles so pathognomonic of leucocythæmia were remarkably apparent upon microscopical examination, the leucocytes being in great preponderance.

Autumnal Diarrhœa.

Dr. W. McWilliams, of Steam Corners, Ohio, says, in the *Ohio Medical Record*, August, 1877:—

In the hot season, the common autumnal or summer diarrhœa is one of the most common complaints for which the physician has to prescribe. As most physicians are aware that a vast amount of it is caused and kept in action by an acid state of the stomach and indigestion, and that laxatives and antacids will generally control it, I present the simple and inexpensive form which I have employed for the last five years with entire success. It will sometimes, though rarely, be necessary to employ a little hydrargyrum cum creta or quinine in connection with it:—

R. Pulv. rhei,		
Magnesiæ,		
Sodii bicarb.,	āā	gr.xl
Sacchari alb,		℥ij
Ol. anisi,		gtt.xl
Aquæ,		f.℥viij
Tinct. opii camph.,		f.℥ss.

Drop the oil of anise on the sugar in a mortar, add the powders, and mix gradually; add the water, pour all into a bottle, and add the paregoric. Shake well before using.

Dose for infant, one-half a teaspoonful; one to two years old, one teaspoonful; two to ten years old, two teaspoonfuls; adults, one or two tablespoonfuls, from three to six hours apart. If it should be necessary to use an astringent, as dry chalk,

R. Cretæ prep.,		℥j	
Pulv. kino,		℥j.	M.

may be prescribed in doses sufficient to produce the desired effect.

This will be all that will be required in most cases of our fall diarrhœas, especially among children, and it has the advantage of being easily prepared and very pleasant to take.

On the Rational Treatment of Dysentery.

Dr. H. C. Wood says, in the Philadelphia *Medical Times*, October 27th, 1877:—

Every practitioner of medicine must be acquainted with the fact that anginas or sore throats are divisible into two classes, those which are mere local inflammations, and those which are the expression of a graver malady, *i.e.*, of a constitutional condition, or, as the fashion of the day terms it, a blood poisoning.

It may not be equally well recognized, but it seems to me equally true, that all dysenteries may be similarly divided. One man is exposed to wet and cold, and gets

a sore throat; while his neighbor, under a similar influence, falls ill of dysentery. One man is thrown in contact with the diphtheritic poison, and gets a constitutional sore throat, whilst another takes in the infection of a crowded, unclean camp, and suffers from a constitutional dysentery.

Any practitioner called to treat a severe simple angina uses both constitutional and local measures; but it is scarcely a misstatement to affirm that the chief reliance is always on the nitrate of silver or other local remedies which are employed. Even if the sore throat be the local manifestation of a constitutional disorder, local applications are made by almost every physician, and by many they are used very energetically.

If we turn to inflammation of the other end of the alimentary tube, we find the treatment in vogue very different from that practiced in anginas. Local measures (except the use of opium) are employed very imperfectly, or, in the vast majority of cases, not at all. The object of the present communication is to call attention to this anomaly, and to enter a plea for the energetic and widespread trial in colitis of local treatment.

This disuse of local applications in dysentery is largely, no doubt, the result of our former inability to make applications to any other than the extreme lower portions of the colon. By the use of forced enemata, so called, we are now, however, able to reach every part of the large intestine.

In giving such injections, it should be first remembered that the name is a misnomer; that no force should ever be used. The patient should be brought to the edge of a hard bed, placed in a position somewhat resembling that for lithotomy, his buttocks resting upon a hard pillow in such a way as to elevate the pelvis and cause the injected fluid naturally to flow downward and inward. A well-oiled, smooth, somewhat flexible, hard tube, with openings in the sides (an œsophageal tube will answer well), and with a closed end, must then be gently and slowly introduced from eight to twelve inches into the rectum. The free outer end of this may be connected with a Davidson's syringe, and the fluid thus be slowly pumped in. A better plan is to unite it with a flexible india-rubber tube, in the end of which a funnel is inserted. This being elevated five or six feet, the water is poured in, and by its own weight, with irresistible gentleness, forces its way into the gut. Instead of a funnel being employed, the tube may be so arranged as to empty a bucket or other reservoir of water placed five or six feet above the patient. A direct connection may be made, or the principle of the siphon taken advantage of. Finally, the so-called fountain syringe may be substituted. In any case, the liquid should be about the temperature of the body, so as not to provoke peristalsis by the stimulus of heat or of cold.

Our experience with other portions of the body would teach us that different forms and stages of dysentery require variety in the character and strength of applications. This, no doubt, is the case; but my experience in angina led me at once to fasten upon nitrate of silver in these experimental trials, and this remedy has worked so well that, with the few opportunities offered, no other has been applied.

Drachm doses of the nitrate have in no case produced any constitutional symptoms, and doses of less than forty grains have not accomplished much good. Twenty-five grains to the ounce is a very common strength for use in angina, and when a drachm of the nitrate is dissolved in three pints of water for an injection, the strength of the solution is only a little over a grain to the ounce. The period of application is, however, much longer than in the case of the throat, and the mucous membrane of the gut is probably more sensitive. The injection usually comes away in from

five to ten minutes, but I have often seen it retained twenty minutes. I have always provided common salt, so that a solution of a chemical antidote could be at once thrown up the rectum if symptoms of general action were developed. No occasion has ever occurred for its use, but in the present stage of our experience it would perhaps be safer to use the salt, if at the end of ten minutes there were no indications of the expulsion of the silver solution.

Owing probably to the mildness of the past summer, but one case of acute dysentery has offered itself in my service at the Philadelphia Hospital. This case, which evidently represented the local form of the affection, was treated almost solely with nitrate of silver injections, and briefly noted, as follows:—

Case 1.—Wm. S., admitted July 13. Had had some diarrhœa a few days, but on morning of admission suffered from a chill, followed by a fever, by frequent mucous bloody stools, constant tenesmus and desire to stool, tenderness over colon, and other dysenteric symptoms. Ordered milk diet and forty grains of nitrate of silver by the rectum, and two grains of opium by mouth.

July 14. Patient comfortable since injections; had only three passages during night. Injection and opium repeated. Had four passages during the day, the last containing scybala; and at night was ordered castor oil and laudanum.

July 15. Had three large, fecal, slightly mucous and bloody stools during the night. Injection as before.

July 16. Since injection, two evacuations, chiefly fecal; no treatment.

July 18. Patient convalescent; evacuation normal; diet improved.

July 27. Discharged cured.

A single case, of course, affords but one peg upon which to hang an argument; but in the present instance the peg is as strong as it can be. The very favorable result certainly warrants a more extended trial of the remedy.

Chronic diarrhœa, so called, is undoubtedly, in the majority of cases, really a chronic dysentery, *i.e.*, a chronic colitis. Notwithstanding all that has been written, a considerable experience in my own practice and that of others has convinced me that it is not always possible to make a positive diagnosis in this class of cases as to the seat of the affection. When the disease is an enteritis, injections must fail to reach the affected part, and consequently fail to do good. This introduces an element of uncertainty into the results of treatment, and must be expected to give rise to an occasional disappointment.

The cases about to be noted have been taken one by one as they entered my ward in the Philadelphia Hospital.

Case 2.—R. S., admitted June 20th with diarrhœa of one month's duration; stools sixteen to twenty daily, variously colored, thin, slimy, streaked with blood, accompanied with griping pains.

July 5. Patient had been treated, besides counter-irritation and opium *pro re nata*, first with calomel and ipecac; then with astringents; then with nitrate of silver; then with forty-grain doses of bismuth every three hours; the diet being a purely milk one throughout. He is much worse than when he entered; excessively weak and emaciated; passages unchanged in character; has had seventeen in last twelve hours. Fifty grains of nitrate of silver in a quart of water were thrown very high up in the colon (tube being introduced fourteen inches), and were retained seventeen minutes; two grains of opium were given by mouth, and turpentine stupes and poultices applied.

July 6. Has been very comfortable since enema.

July 7. Bowels opened for the first time since enema; color dark, consistence mushy.

July 9. Bowels again opened; character as last. Injection repeated.

July 14. Fairly convalescent; bowels normal; diet altered.

August 1. Discharged cured.

August 28. Reported that he had no return.

CASE 3.—Sarah K., admitted June 23d, for diarrhœa of two months' standing. She is very much emaciated, and has from six to ten stools in the twenty-four hours; passage thin, slimy, streaked with blood, variously colored; there is some tenesmus; tongue covered with a brown, pasty fur.

July 11. The treatment since entrance has consisted of milk diet and opium *pro re nata*; calomel and ipecac; subnitrate of bismuth in forty-grain doses every two hours; lead; vegetable astringents; sulphate of zinc; sulphate of copper; finally oil of turpentine. The patient has received no advantage, her general condition being worse and her diarrhœa unchanged. Sixty grains of nitrate of silver given, and retained twenty minutes; turpentine stupes to abdomen, and two grains of opium by the mouth after injection.

July 12. Patient passed a comfortable night; bowels opened but once since injection. All treatment, except a little opium, suspended.

July 13. Two thin, slimy passages.

July 14. Five passages; injection repeated.

July 15. Patient very comfortable; no passages since enema came away.

July 20. Patient convalescent; no return of the diarrhœa.

July 30. Discharged cured.

CASE 4.—Louisa M., admitted July 11th, had suffered eight days from diarrhœa, with numerous copious, slimy, very offensive discharges daily; tenderness over descending colon.

July 29. The treatment since entrance has consisted of proper diet; opium, calomel, persisted in until slight ptyalism was induced, followed by opium, large doses of subnitrate of bismuth, and moderate doses of vegetable astringents; then turpentine freely by the mouth. The patient is much worse than when she entered; very weak; passages unchanged in character; nine in the twenty-four hours. All medicines stopped except some opium. Fifty grains of nitrate of silver ordered daily by injection.

July 30. Four passages in twenty-four hours.

August 2. One large, mush-like passage in twenty-four hours. From this time convalescence went on regularly, the diet was gradually increased, and August 29th the patient was discharged well.

CASE 5.—John K., admitted August 1st, for diarrhœa of three months' standing, for which he has been unsuccessfully treated by various physicians. Stools numerous every day, very offensive, highly mucous, and bloody. Ordered restricted diet. Sixty grains of nitrate of silver by injection ordered.

August 5. But three passages in twenty-four hours; the injections given at intervals of several days.

August 15. Convalescent; diet increased.

August 30. Discharged entirely cured.

CASE 6.—E. W., aged thirty-two, laborer, admitted September 10th, suffering from diarrhœa of three weeks' standing. The discharges were said to have been at first very frequent, watery, and fecal. After a time blood and mucus appeared in them.

t time of admission he had from fifteen to twenty passages in the twenty-four ours, chiefly serous and fecal, but sometimes containing mucus streaked with blood. e was treated until September 18th with castor oil, acetate of lead and opium, nnic acid and opium.

September 18. Patient better than on entrance; no blood or mucus in passages r two days, but they are still very watery, seven and eight in the twenty-four ours. Received fifteen grains of nitrate of silver in a pint of water; it was retained bout twenty minutes.

September 20. Four passages in twenty-four hours; character unchanged; toward evening a second injection given.

September 24. Since last date has received no injection; the passages have been decidedly thicker and more fecal, but quite as frequent, from seven to twelve in twenty-four hours. Received forty grains of nitrate of silver in a quart of tepid water; retained only four minutes.

September 25. Only one passage during the night.

September 27. Had during twenty-four hours of September 26th two passages, natural in color and much thicker in consistence. Injection repeated.

September 30. Passages during last twenty-four hours three in number, natural in color, formed. Had injection of fifty grains on 28th.

October 18. Passages as before, but an injection was administered.

October 11. Since last July patient has steadily maintained his improvement. Has each twenty-four hours two to three formed, natural passages.

CASE 7.—Michael Grassman, admitted September, 1877; previous to admission had been passing, for about six weeks, watery evacuations from the bowels, mixed at times, according to his statements, with blood and mucus. The number of discharges during the twenty-four hours has ranged from fifteen to thirty. There was no blood in any of the passages examined by the resident physician.

The tenderness was diffused over the whole abdomen, but was especially located in the umbilical region.

On September 20, at 7 P.M., an injection of nitrate of silver (forty grains to a quart of tepid water) was given; the injection was followed in six minutes by a watery passage, very slightly colored, and during the night five passages occurred, of a similar nature.

September 21. At 10 A.M. a second injection was given of the same strength. In five minutes occurred a watery passage.

September 22. Another injection.

September 24. During 23d had five passages.

September 25. During the 24th had nine passages. Injection repeated.

September 26. Injection; no improvement.

September 28. Injection of fifty grains; no improvement.

October 4. Several injections have been given since last entry, but as the patient has in no wise improved treatment is discontinued.

Extended remark upon these cases is hardly necessary. Attention may, however, be called to the facts that Cases 2, 3, 4, and 6 had been in the house from one to seven weeks, and had been unsuccessfully treated with the ordinary remedies for chronic dysentery before the nitrate of silver was used; that there was no change of diet at the the time of injection, and that no medicine, save a little opium, was given by the mouth.

Digestion and its Disorders.

Dr. W. W. MURRAY, of Baltimore, Md., read before the Baltimore Medical and Surgical Association an able paper upon this subject, and which subsequently appeared in the *Virginia Medical Monthly*, February, 1877 :—

Writers on dyspepsia generally treat of its management under the three heads of diet and regimen, moral treatment, and the administration of medicines, and as this division is a useful and practical one, I shall adhere to it in my remarks on this portion of the subject.

The Diet and Regimen.—The dyspeptic must learn to eat slowly. It is no matter for wonder that we are a nation of dyspeptics, when we go into a merchants' restaurant or to a hotel table, and see every man manipulating his knife and fork as if he were eating against time for a wager. This abominable habit must be given up by him who would enjoy healthy digestive powers. He must also masticate his food thoroughly; if imperfect grinding of the food be due to mere habit, it must be broken; if it be due to bad or deficient teeth, let him patronize a good dentist immediately, and obtain from art what nature has denied him, and thus enable himself to perform this, the very first of the essentials of perfect digestion. Tough meats should be avoided, on account of the difficulty of masticating them perfectly, even with a good set of molars. Minced meats are particularly difficult of digestion.

Roast beef, especially if it be rare, is very digestible; mutton still more so. As a rule, fish are more difficult of digestion than meats are. Poultry—chickens, turkeys, ducks and geese are to be preferred in the order mentioned. Eggs are very suitable when properly cooked. They should not be boiled more than three minutes. A better way is to put them in cold water, and remove them as soon as it boils.

Pastry of all kinds is to be avoided, as it is very indigestible. The condiments, in moderate quantity, rather promote digestion, but their excessive use is to be deprecated; otherwise they will do harm by over-stimulation, resulting in subsequent deficient secretion. Small quantities of alcoholic drinks will promote digestion when the process is slow and imperfect; but if taken in excess they interfere with the secretion of the gastric juice. The danger of contracting the habit of drinking, even when taken in small quantities, should not be overlooked, and should make us cautious in recommending them.

The excessive use of cold water during and after meals is a very injurious habit, and one often indulged in by dyspeptics. It is harmful in several ways. 1. By depressing the local circulation, thereby retarding the secretion of the gastric juice. 2. By diluting the gastric juice, thereby reducing its digestive power. 3. By lowering the temperature, thereby retarding digestion, which is more perfect and complete at 100° Fahr. than either above or below that point. 4. By producing over-distention of the stomach, which is so unfavorable to the digestive process.

In 1873 Brown-Séquard published an article on a new method of treating functional dyspepsia. The new method consisted in requiring the patient to eat, instead of three times daily, as often as every ten or fifteen minutes, only a small portion of food being taken at a time; and he claimed for it the most brilliant results. In 1869, I myself was the subject of dyspepsia, brought on by sedentary habits, intense mental application and the excessive use of tobacco. The object I had in view necessitated both the sedentary life and close and unremitting study, and I found by experience that the only way that I could live with any comfort at all was by keeping a cold roast of beef on my table, and eating a very small piece every few

minutes. I never tried this method on others, but from the immediate relief it gave me I am prepared to believe that Brown-Séquard has not over-estimated the beneficial results which may be expected from it. The trouble would be to induce patients to practice it thoroughly.

As regards the regimen suited for dyspeptics, I may remark that outdoor exercise must not be neglected. The exercise may be either active or passive, or both combined, but in one or other form it is absolutely necessary. Walking is probably the best form of active exercise; rowing, gymnastics, the health-lift, etc., are all good. The combination of both kinds of exercise in horseback riding is especially to be commended. But whatever be the form resorted to, whether it be active or passive, or a combination of both, it should never be carried to the point of fatigue, nor should it be indulged in shortly after a meal. If the patient be too feeble to take any form of active exercise, he should still go out in the open air, as in sailing or driving.

The dyspeptic should have regular habits, and should avoid excessive indulgence in sleep, and especially should he not lie on a feather bed; no form of bed is comparable to a hair mattress. The amount of bed clothing, too, should be regulated with care; just enough cover to retain the animal heat, without being too heavy, should be the rule. If the quantity required to keep the individual warm be so great as to be uncomfortably heavy, it may be obviated by the use of an eider-down quilt, or, if this be out of reach, the simple plan of pinning a layer of newspapers over the blanket will answer every purpose.

The external application of cold water is, in many cases, very beneficial, and may be employed as a plunge, shower or sponge bath, according to the inclination of the individual. Sometimes we meet with patients who cannot stand the shock of cold water, and who, consequently, are not benefited by its use. When, after a bath, the individual feels cold and chilly, and there is no healthy glow, even after friction with a rough towel, cold water is injurious, and must be discontinued.

Moderation in all things, and over-indulgence in nothing should be the watchword of the dyspeptic. There is no class of patients whose hearty and earnest coöperation is more necessary in our efforts to cure them, and there is no class, perhaps, in which we meet with less of it.

Medical Treatment.—There are two indications to be followed in the treatment of dyspepsia; one is to relieve symptoms, and the other is to cure the disease.

The Relief of Symptoms.—Pepsin is of almost universal use in dyspepsia, for facilitating the digestive process; and while it is of great service in one form of this trouble, it is to be feared that it is often employed without a clear understanding of what it may reasonably be expected to accomplish; for this reason, it has been considered by some physicians of doubtful value. As the gastric juice is limited in its action to the albuminous elements of our food, it is evident that pepsin can be of service *only* in that form of dyspepsia in which this secretion, either from its deficient quantity or impaired quality, fails to convert albumen into albuminose; but in this form of digestive disorder, pepsin is a most valuable addition to our means of relief. The great difficulty is in our being able to determine with accuracy when we have to deal with this special form of dyspepsia. If, soon after eating, say within three or four hours, there be uneasiness and pain in the stomach, accompanied by gaseous distention of that viscus (provided the rules laid down in regard to proper mastication and to over-distention by food or drink have been violated), and especially if these sensations are observed to follow a diet composed for the most part of animal

food, the presumption is decidedly in favor of albuminous dyspepsia; but if there be besides these, eructations of sulphureted hydrogen, popularly known as "egg belch," then there is no doubt about it, and pepsin will do more good than anything we can give.

On the other hand, if there be amylaceous dyspepsia, indicated by acid eructations, heartburn, flatulent distention of the intestines, and passage *per orem et per anum* of a tasteless and inodorous gas, then pepsin can do no good. But, fortunately, we have another agent to arrest the case, in the form of pancreatin, the great digester of starch.

The same agent is very useful when we have reason to suspect indigestion of oils and fats. This form of dyspepsia is very much more rare than either of the two just spoken of, and it may be that it never occurs as a purely functional disorder, but it does sometimes exist when the pancreas is the seat of organic lesion. It very possibly occurs in phthisis also, because in this disease there is almost always an aversion to fatty articles of food; an improvement generally takes place as soon as we can promote their assimilation. And not only so, but, as far as my experience goes, cod-liver oil emulsionized by pancreatin gives better and more speedy results than the simple oil.

When gastric digestion is slow and imperfect, owing to a deficiency in the quantity of the gastric juice, in addition to the use of pepsin immediately after eating, I have found a combination of ipecac, capsicum, and quinia to greatly promote the process. I usually give one grain of each in form of pill, but it should not be given until the patient is ready to begin on his dinner, otherwise the ipecac will occasion nausea; indeed, it is not uncommon to find that, even with this precaution, the single grain will nauseate; when this is so, I give a still smaller quantity, say half a grain.

In dyspepsia, as we all know, the intestines participate in the general atony, and there is, in the majority of cases, constipation. When this is so, I know of nothing better than one or two grains of the pil. rhei comp. with the dinner pill alluded to. This combination will generally not only increase the appetite and promote digestion, but it will also give a healthy, pleasant stool the next morning. I frequently find that two grains of the pil. rhei comp. give two or three stools; in that case I give one or one and a half grain.

One of the most annoying, and at the same time most common symptoms which we are called upon to treat is *flatulence*. It may frequently be prevented by the use of the hyposulphites, or by sulphurous acid soon after eating. It may generally be relieved by the aromatics.

Acidity and heartburn are temporarily relieved by alkalies. Excess of acidity is believed to be due to a perverted action of the nerves of the stomach, and hydrocyanic acid has been found to be the most reliable agent for the correction of this condition.

Intestinal Obstruction—The Vital Necessity of a Cautious and Conservative Treatment.

Dr. EDWARD MONTGOMERY communicates to the St. Louis *Medical and Surgical Journal*, October, 1877, an interesting article upon this subject. He says:—

To any one enjoying a liberal general practice in a city like St. Louis, the opportunity will often be presented to treat various cases of disease of the bowels, depending on very different pathological conditions, but of which the most prominent

symptom, or at least that to which the attention of the physician is most urgently directed, is obstipation, or the want of a free, easy, and satisfactory relaxation of the bowels.

Whether the intestinal obstruction is caused by a true intussusception, a volvulus, a twisting or knotting of the bowels, from strangulation, from a hernia or false ligament of the omentum or mesentery, from obstruction inside the intestines, from gall-stone or enterolithus, from stenosis or ulceration, or from impacted fæces, the one remedy, in the opinion of the patients and friends, is the heroic employment of cathartics and purgatives.

Now, the fact is that very few of these cases can be relieved at all by cathartics or purgatives; indeed, most of them will be much aggravated and intensified by such medication. Take the cases of intussusception, strangulation, knotting or twisting of the bowels, and the stimulating and irritating action of purgatives will greatly tend to the irremediable and hopeless condition to which such cases naturally incline. The invariable course of these cases is to inflammation, ulceration, perforation, gangrene, and sloughing. The portion of the intestine involved is generally impervious or very nearly so, and any attempt to force the contents of the bowels through the obstructed part will be utterly futile to that end, and will excite the peristaltic motion, and increase the irritation which it is our most urgent duty to tranquillize and allay. I do not wish these remarks to apply to warm-water enemata, which I believe will not excite inflammatory action, but will often soothe and relax the parts, and give relief and temporary composure to the patient. Even in intussusception and complete strangulation of the intestine, if we can keep down inflammatory action, and keep the parts soothed and quieted by leeches, warm fomentations and poultices, anodyne injections and opiates, inflammatory processes may go on gradually, slowly, and safely, until sloughing of the diseased parts takes place and is expelled, and a permeable and efficient canal is restored. Whenever there is the least fear that the case is of the kind above described, we should eschew all purgatives by the mouth, and trust entirely to the soothing and conservative treatment alluded to, and endeavor to obviate the tendency to death by the careful and diligent use of nutritives and restoratives, and by keeping the patient in the most favorable circumstances for the often most happy workings of the vis medicatrix naturæ.

When called to a patient with intermitting pains in the abdomen, mostly near the umbilicus—at first but slight tenderness about the part implicated, afterward spreading over the greater portion of the bowels; nausea; vomiting, at first the simple contents of the stomach, stercoraceous in the advanced stages; no free, satisfactory stools; perhaps frequent small mucous and bloody dejections, the pulse becoming quick and small, the skin cool and clammy, tympanites, meteorism, the features shrunk, pale, and pinched, with great prostration—we will feel justified in treating it as one of a most grave and dangerous description.

When with the above alarming symptoms we can feel the sausage-like tumor in the region of the ileum or ileo-cæcal valve; when the patient tells us he feels the oleaginous emulsions, the saline solutions, the seidlitz or seltzer waters go down to that spot and stop there; when the clysters and injections go up to that point and abruptly stop there, we may rest assured there is intussusception, strangulation, or such an obstruction that purgatives or cathartics cannot relieve, but the employment of which will be fraught with imminent danger.

The very common practice of giving powerful stimulants, such as the compound

spirit of chloroform, the tincture of cardamom, ginger, cayenne pepper, etc., to relieve the tormina and pain, is also a pernicious practice, and well calculated to prevent a happy issue of the case. We should never forget that the immediate and inevitable course of these cases is to inflammation, and if we can modify and control that morbid process so as to prevent an extensive enteritis and peritonitis, relaxation and resolution of the volvulus or stricture may occur, or a slow and mild adhesive inflammation of the parts implicated may occur, so that the portion above and the portion below the point of constriction may unite, and the knotted, invaginated, or strangulated folds of intestine may slough away and be expelled per anum, leaving an unobstructed canal as before the injury.

Even in cases of obstipation where the cause of the trouble is impacted fæces, lime or magnesia concretions, sometimes found in those in the habit of using magnesia and prepared chalk for heartburn, acidity of stomach, or some form of dyspepsia, gall-stone, or other forms of enterolithus, a perturbating purgative treatment will not prove satisfactory and efficient; mild saline aperients, oleaginous emulsions, warm fluid enemata given frequently, freely, but slowly and cautiously, with constant hot poultices to the whole abdomen, will prove the most happy and successful treatment. Where the illness occurs suddenly, where the intermitting, colicky pains are severe, where there is swelling above and flaccidity below the seat of obstruction, where vomiting is persistent, becoming at last stercoraceous, and where the features are anxious and pinched, opiates and restoratives are our sheet anchor.

To treat a case presenting the above symptoms by venesection, blisters, drastic purgatives, belladonna, tobacco, and quicksilver, which has often been done, would be barbarous and unscientific in the extreme. In such cases the most promising and most rational course is, if the patient is robust, to apply leeches to the tender part of the abdominal walls, followed by hot soothing poultices; give slowly, carefully, but frequently, warm-water injections, and either by the mouth, rectum, or hypodermic injections, administer opiates in sufficient quantities to subdue irritation, pain, and vomiting. In giving the enemeta, a long gum-elastic tube should be used, the rectal end inserted as far up as possible, and the distal end furnished with a funnel in which to hold the warm water, and to hang up five or six feet above the patient, so that the injection may pass up the intestinal canal efficiently, and with steady and uniform force. The practice advocated by some of injecting acids and alkalies to produce gas in large quantities, so as to force the reduction of the invagination or strangulation of the bowel, is certainly hazardous; and, indeed, in such cases, the propulsion of air or fluids should be done with great prudence and caution.

In all cases where intestinal obstruction is above the ileo-cæcal valve, the injections should be given whilst the patient is under the influence of chloroform; indeed, the occasional use of anæsthetics will probably materially assist in relieving these intestinal obstructions. All authors agree that in making out our diagnosis of these cases, we should most carefully examine all hernial openings, as a small interstitial, an obturator, an inguinal, or a femoral hernia might be very readily overlooked, and our patient's life jeopardized by our carelessness. The careful examination of the abdominal walls by palpation, percussion and auscultation, and the digital exploration of the vagina and rectum, will often guide us to a nearer appreciation of the true nature of the case. Leichtenstern truly says that distinctive anamnestic information or characteristic signs are often wanting, and our diagnostic ability is limited to this, "that by a consideration of the history, the course of the disease, the

seat of the occlusion, the age and sex of the patient, and the relative frequency of the occlusion, we can reduce the circle of the possibilities of exclusion, and form a more or less well-grounded hypothesis; while diagnosis, in the exact sense of the word, does not advance beyond a determination of the existing occlusion and its probable position." (Leichtenstern, in Ziemssen's Encyclopædia, page 508, vol. vii.)

Whilst, therefore, it is often impossible to determine whether intestinal obstruction is caused by an intussusception, a twisting or knotting of the bowel, a strangulation by a false ligature, a constriction from a cancer or from ulcers, our treatment will be almost the same; whilst in those cases where purgatives, nerve tonics and electro-galvanism are employed, the diagnosis is generally easily made out.

In those cases of impacted fæces which are so often met with, we have seldom much difficulty in arriving at a proper recognition of their exact nature. They do not come on suddenly, all the symptoms are less violent, and although the pains may be severe, and the vomiting obstinate, there is wanting that haggard look, the pinched features, cold, clammy skin, quick pulse, prostration, and small, bloody, mucous stools so pathognomonic of true volvulus, knotting, twisting and strangulation of the bowels. In fecal impaction, we can easily feel the oval, flat mass, and by the frequent hot-water injections, with or without sulphate of soda or sulphate of magnesia, fecal matter and scybala will soon begin to come away, and thus completely verify our diagnosis.

In treating these cases of fecal impaction, the hot poultices to the abdomen, warm-water and saline injections, and, after the evacuation of the lower portion of the alimentary canal by enemata, purgatives by the mouth, given with judgment and discretion, will hasten the removal of the difficulty. In young, robust patients, at the early period of the disease, one-tenth of a grain of tartar emetic and one drachm of sulphate of magnesia, every hour, will very often aid in breaking up and removing the obstruction.

As it is very common for these cases of intestinal obstruction to be associated with conditions of torpor, or even paresis of portions of the bowel, the administration of the following pill will be found of great service:—

℞. Strychnine,		gr.j	
Ext. belladonnæ,			
Podophyllin,	āā	gr.iv	
Pulv. ferri sulphat.,			
Aloe socot.,	āā	gr.xx	
Syrup simp.,		q. s.	M.

Divide into twenty pills; one to be taken every eight hours.

Even after the removal of the impacted mass, this pill will be found valuable in preventing a relapse, and in promoting regularity of the bowels afterward.

Where the intestinal obstruction depends on gall-stones, or other enteroliths, the treatment will not materially differ from that recommended in fecal impaction. Of course suitable food of easy digestion, and an endeavor to correct and promote the secretions, will be absolutely necessary. In all these cases of obstipation, it may be well to advise the patient to have recourse to moderate but frequent draughts of fluid nutrients, and especially such as will promote a free and easy movement of the intestinal contents. It may be well to mention that in these cases of enterolithus the long-continued warm bath sometimes does good, I presume by causing relaxation of the intestinal walls, and thus favoring the passage of the foreign body. I will not discuss the cases of intestinal obstruction where operative interference can alone

offer amelioration, but believing that many lives may be saved by the skillful procedures of the enlightened surgeon, I leave such cases to his studious care and wise consideration. The wonderful advances and discoveries, and the yearly increasing success of the modern ovariotomist and gynecologist, forbid us to despair of any achievement in that branch of the healing art; even now I see some of our eminent surgeons are recommending gastrotomy in irreducible obstruction. And when we find that the peritoneum can be cut into, and a tumor of sixty or eighty pounds, or even the uterus itself, safely removed, why can we not cut down on an obstructed bowel and relieve the invagination, the volvulus or stricture?

(*d*) DISEASES OF THE URINARY ORGANS.

Diabetes Mellitus—Report of Two Cases, with Recovery.

Dr. T. CURTIS SMITH, of Middleport, Ohio, read before the Ohio Valley Medical Association, May 3d, at Ashland, Kentucky, the following paper, which was subsequently published in the Detroit *Medical Journal*, June, 1877 :—

CASE 1.—F. S., aged twenty, nervo-bilious temperament; farmer; of general good health, excellent habits and industrious; on his maternal side inherits phthisis distantly. Saw him in September, 1876, when I found him laboring under the effects of malarial fever, then very prevalent in his vicinity. From this he soon recovered, but was left weak, and continued for some weeks unable to exert himself to any considerable extent. Tonics and continued rest failed to restore his strength. He stated at my first visit that he was making "plenty of water." This was in reply to inquiry. His weakness continuing and rather increasing, Dr. Fisher was called October 25th, in my absence, to see him. He was found with considerable general debility, general malaise, nocturnal fever, some lumbar and head pains, with considerable renal derangement; urine reported quite free. On my return I called to see him, November 5th; found him with all the above symptoms except fever, but also with considerable cough and hoarseness, well-defined symptoms of bronchitis, and dullness over the apices of both lungs; had a peculiar cachectic appearance, pulse 90, skin felt normal, temperature 99; had severe night sweats, with loss of appetite. On account of his slight hereditary tendency to phthisis, I was disposed to anticipate trouble of this kind and doubted his recovery; thought his increased loss of flesh due to this and nothing else. No mention had been made to me of his excessive flow of urine at this visit, nor at any time except upon my first visit, when he said that he made "plenty of water, more than in health." After two weeks of treatment for his bronchitis it disappeared, as did also his nocturnal ephidrosis. The appetite then became insatiable, but still no gain in his strength; a continued loss of flesh and strength noticeable, though not rapid. As his lungs had now entirely cleared up, it seemed to me he ought to become stronger, as no evidence had been elicited, after pretty careful examination, to account for his continued weakness. This carried the case up to November 17th. His mother at this visit asked me if her son had ever told me of his "making so much water." I told her no. She stated that he made about twice as much as he ought to do, as she thought. On conferring with Dr. Fisher, we concluded his trouble might very possibly be diabetes mellitus. Accordingly, a specimen of his urine was obtained and analyzed, first by Dr. F., then by myself, when we found undoubted evidence of sugar, in considerable quantity, in his water, by means of Trommer's, Bœttger's and Moore's tests, and the fermentation test. A careful measurement of

his water showed that he was voiding nine pints per twenty-four hours, which was far beyond previous representations. It was further elicited that he had been afflicted with an excessive flow of urine most all of the previous summer, during which time he had felt listless and indisposed to work, always becoming tired very soon. His weight was now 117 pounds, average weight 135 pounds. Having the diagnosis now clearly made out, it was at once determined to put him on the sulphide of calcium and Pavy's anti-diabetic diet.

This decision was made in view of the very fatal results from this disease, under any course of treatment that had ever been adopted, except the report of a very few cases of recovery under the use of this sulphide. (See *Medical and Surgical Reporter*, vol. xxxiv, page 97, 1876, and same journal, vol. xxxv, pages 398 to 400.) These cases were reported by Drs. Scattliff, of England, and C. C. Cranmer, of Saratoga, New York. These cases, coupled with a commendable report of the value of the sulphide of calcium in this disease by that very excellent authority, Sidney Ringer, referred to in the *Reporter*, but never seen by me, and a brief note of its value by an Italian physician, were sufficient to cause me to come to this decision promptly, though in doubt of its value. I therefore placed the patient on sulphide of calcium, two grains every four hours, and Pavy's anti-diabetic diet.

An immediate diminution in the flow of the urine was observable, and a diminished quantity of sugar in that discharged, and an immediate increase in his weight was apparent. From 117 pounds, which was his weight November 21st, he gained one pound a day for the first fifteen days, his weight being 133 pounds in that time.

Sugar was detected in his urine in progressively decreasing quantities until December 14th, when it contained a trace. A mere trace persisted for two weeks longer. The quantity of urine ran down from nine pints at the commencement to one and a half and two pints by December 15th, and never permanently increased above this afterward. The specific gravity of the urine ranged at first from 1.026 to 1.036, generally standing 1.030 to 1.032. After a month's treatment it came down to 1.020 as an average. Sometimes it was above this, sometimes below.

Case 2.—Mr. M., aged fifty-two, came to my office January 2d, 1877; to be treated for urinary trouble. He is of a nervo-sanguineous temperament, of general good health for many years, until within the last two; height 5 feet 8 inches, former weight 165–8 pounds, weight now 140 pounds; habits semi-sedentary, very temperate and regular. He stated that he was then, and had been for two years, troubled with a morbid flow of urine, which was very annoying and troublesome, and that it is now and had been causing loss of weight and strength. The disparity showed a loss of about 25 to 28 pounds of flesh. He seemed still vigorous, but considerably broken down from his former self. He, upon measurement, found that he was making four and a half quarts of urine in twenty-four hours, sp. gr. 1.032. Trommer's test showed a tolerably heavy deposit of dark brown ochre. Roberts' test showed that there were twelve grains of sugar to the ounce. All the tests before named proved unmistakably the presence of sugar in abundance. He was put upon the sulphide of calcium, four grains three to four times a day, and a mixed diet allowed for the first week, at the end of which time the urine contained eight grains of sugar to the ounce, and the urine was reduced to a trifle over two quarts. Pavy's anti-diabetic diet was now enjoined and strictly followed, and when a week later he brought a specimen of his urine it showed a specific gravity of 1.020 and not a trace of sugar. Though he had not weighed himself, it was evident that he was gaining. But a month after commencing treatment he weighed 151 pounds. Soon after this

a mixed diet was allowed, but there was no return of the disease, nor has there been any to this date.

Aspiration in Hydatid Tumor of the Kidney.

Dr. J. B. BRADBURY gives the subjoined interesting case in the *British Medical Journal*, October 6th :—

Henry Whitbread, aged eight, living at Gamlingay, in Cambridgeshire, was admitted into Addenbrooke's Hospital on July 5th, 1876, under my care. He was a sharp, intelligent-looking boy, and rather thin. His only complaint was of an enlarged abdomen. A large, tense, elastic swelling occupied almost the whole of the left half of the abdomen, which was absolutely dull on percussion. No distinct edges could be felt to the tumor, which was not, however, perfectly smooth and regular, since two slight localized swellings were found on its anterior surface. Superiorly, the percussion dullness reached to within one inch and a half of the nipple in the nipple line, and, tracing it to the right, it became separated from the liver dullness (right lobe) by a band of well-marked resonance. It then passed down, about one inch and a half to two inches to the right of the mesial line, and lost itself below in the dullness of the (full) bladder. On tracing it to the left, the dullness reached as high as the seventh rib in the axillary line, but at this level it did not quite extend to the spine. The whole of the left hypochondrium was filled with the tumor, and there was complete dullness down to Poupart's ligament. The percussion was tympanitic over the rest of the abdomen not occupied by the tumor. At the upper part of the tumor the " repercussion thrill " could be obtained.

The heart's apex beat immediately beneath the nipple, just under the fourth rib. The heart and lung sounds and the urine were normal. The liver was also normal. On July 6th I introduced the needle of an aspirator into the tumor, and drew off forty-four ounces of hydatid fluid. No hooklets were found in the fluid. After the operation the boy vomited several times, his pulse became quick (140 to 150), and the following day he had an eruption of urticaria, which lasted till July 8th. The temperature on July 7th was 102.4° Fahrenheit, but at no time did it exceed this point. On July 10th the boy was progressing favorably; there was no tenderness over the tumor, but the urine was found to contain albumen, due to the presence of pus.

July 13th. The descending colon was found to be displaced toward the right side, and to run obliquely from the neighborhood of the xiphoid cartilage to the left iliac fossa.

July 15th. The urine still contained pus. The abdomen was enlarging again. When the boy was compelled to sit up in bed he complained of pain in the loins, and four of the lumbar spines were found to be prominent, and the skin over them reddened. They were very painful on pressure. The pain in the back continuing, it was decided to aspirate the tumor again on July 16th, and this was done by Dr. Humphry, under the influence of chloroform. Thirty-one ounces and a half of a greenish opalescent fluid were withdrawn, which, in the later stage of the operation, was flaky and apparently purulent. After standing, the fluid deposited two ounces of pus. Under the microscope, pus-cells and the heads of numerous echinococci armed with hooklets were detected. He vomited again several times after the operation, but no urticaria followed the second puncture, as is invariably the case, so far as my experience goes. There was a slight fall of temperature after the second aspiration, which was permanent, the temperature only on one occasion exceeding 100° Fahrenheit.

On July 25th and 26th, small cysts with hooklets were found in the urinary sediment. From this time the patient became gradually better. The pain in the loins and tenderness over the vertebræ became less and less, and the urine deposited less pus. The descending colon also assumed its normal position. On several occasions echinococci were found in the pus, and also a few hyaline casts. The boy made a good recovery.

A Case of Addison's Disease.

The following case is reported by Dr. C. E. STEDMAN in the Boston *Medical and Surgical Journal*, October 25th, 1877 :—

On the 8th of August, 1869, I was asked to make an autopsy of Ida S., aged seventeen years, who died the day before. Her mother says that the patient's menses have been regular since she was thirteen years old. Her complexion began to grow dark a year before; others of the family think this date is placed too far back, but Mrs. S. insists that twelve months have passed since the change was noted. The girl's general health began at that time to fail, but so insidiously that she was not considered ill till five months previously. Just before that time I saw her while attending her grandfather for a railroad accident, which proved fatal, but only noticed that she was darker than the rest of the family; I was not asked for advice. Early in March she showed a dark circle around the neck, which was supposed to be caused by some article of dress, and the discoloration began to be observed by others beside her mother. Along with this she began to be puffy under the eyelids in the morning, was easily fatigued and rendered breathless, had frequent nausea and vomiting, headache, backache, and "sideache." Her appetite became capricious, with craving for salt and acids; the bowels were generally constipated, with occasional diarrhœa, languor, and sleepiness, and latterly hiccough. She had been up and about the house during this illness, and only a week before her death she walked out It was not till the 3d of August that a physician was called to see her; he was surprised by the discoloration of the skin, which was of the hue of a mulatto over the whole body, deepening almost to black in the folds of joints. She had pain and great tenderness in the lumbar region, increased by pressure; the menses were present. The next day vomiting set in, and continued till three o'clock in the morning of the 6th, with relief to the pain in the back; an enema produced a copious natural discharge. The thirst was insatiable. No tenderness of the epigastrium was observed, but great distress and distention before a fit of vomiting, which relieved it. There was no headache, but slight delirium; no convulsions; the breathing occasionally was stertorous. Twelve ounces of urine were passed, the constituents of which are not recorded. The region of the liver was flattened, not tender. Exhalations from the skin were fetid, a very bad odor being constantly in the room; there were no hemorrhages.

August 6th. The vomiting, stopping at 3 A.M., recommenced at 5, with constant nausea.

August 7th, 8 A.M. Nausea ceased during the night, and the patient said she felt better; tongue partly cleaned; skin mottled and streaked. Slight trismus was noticed while her mouth was washed with cold water; the conjunctivæ were congested; there was slight delirium. Died at 10 o'clock A.M.

Autopsy, August 8th, at 3.30 P.M., by Dr. Stedman. Color that of a light mulatto, having cleared very much since death. Body slight, but not emaciated. Lips livid, as if she had been eating mulberries. Mammary development very large for a

young American girl; areolæ almost black, and shining cracks in the skin of the breasts; nipples very small and undeveloped; otherwise the appearance of the breasts would have suggested pregnancy. Head not opened. Heart small and flabby, not fatty. Lungs crepitant throughout, but firmly glued to costal pleuræ and diaphragm by old adhesions. Stomach large and its walls thin. The coats of the intestines thin; abdominal glands somewhat enlarged. Liver enlarged, flabby; the right lobe looking fatty, adherent by its lower surface, requiring dissection to free it; in doing this an abscess was cut into on either side; these were seated in the supra-renal capsules, which adhered to the liver, were of firm texture, and the size of a man's thumb; a cavity existed in each, holding a drachm of pus-like fluid, and the remaining substance looked like broken-down caseous matter. The uterus slightly anteflexed and virginal. Other organs were examined and found normal.

Nephritic Colic.

Dr. FERDINAND KING, of Atlanta, Ga., writes to the Atlanta *Medical and Surgical Journal*, October, 1877:—

I have recently attended a severe case of the above trouble, to which I wish to call the attention of the medical profession, on account of the successful result of the treatment, which, I must confess, was "accidental." The course pursued in the case I here report may be familiar to some members of the profession, but I have not been able to find it in any text-book at my command.

I was called at one o'clock on the morning of May 10th, 1877, to see Mr. O A., a confectioner, on Marietta street, in this city, who, the messenger informed me, had been suffering since early in the night "with cramp colic." On reaching his apartment, I found the patient resting on his knees and elbows, in which position he expressed himself as being most comfortable, though the pain was constantly present, and confined to one side. It was of a sharp, lancinating character, beginning in the left lumbar region, and extending down through the left inguinal region, and along the spermatic cord to the left testicle. I at once decided that the case was one of nephritic colic, which is simply the result of the passage of a renal calculus, along the ureter, from the kidney to the bladder. Beside the pain referred to, the usual symptoms of dysuria and increased frequency of micturition were also observed. At times, following intervals of short duration, during which he was comparatively free from suffering, he was seized with the most intense pain, which he compared to the thought of being cut by a very dull knife. He was also suffering from extreme nausea, making strenuous efforts to vomit, but without success. The attack came on very suddenly, while the patient was attending a concert in the evening.

Morphine, subcutaneously, was the first remedy that suggested itself to me, but, as I had failed to provide myself with a suitable syringe before leaving my office, I was forced to adopt another form of administering the anodyne; so I gave half a grain of the salt in a teaspoonful of water, but it was immediately rejected by the stomach, which seemed to be in an extremely irritable condition. Thinking it necessary to improve that organ by the use of an emetic, I gave my patient about thirty grains of ipecacuanha in half a glassful of cold water. To my utter surprise and astonishment, the medicine did not vomit him, nor did it even increase the nausea already present, but, on the other hand, it relieved the pain, as well as nausea, and the patient soon fell into a quiet, gentle sleep, that lasted about three-quarters of an hour. On awakening, there was a recurrence of the pain, but of decidedly less severity. I then administered another thirty grains of ipecacuanha,

which again brought almost immediate relief, and a sleep that lasted two hours. As it was now about daylight I gave him the third and last dose of ipecacuanha, thirty grains, making in all ninety grains of the drug. After this, he slept quietly until ten o'clock, when he awoke entirely free from pain, but very much prostrated. As he was badly constipated, the next object was to open his bowels. Having attended the gentleman in former troubles (though of a different character), and knowing how difficult it was to accomplish this, I anticipated no cathartic effect from the large quantity of ipecacuanha I had given him, so I gave him four fluid ounces of cathartic elixir, which operated very copiously in the course of two hours.

During the remainder of the day he voided about a normal quantity of urine, which was of extremely high color, and slightly tinged with blood. I directed that it should be carefully preserved, so that I might find the "gravel," or renal calculus, when it came away. Late in the afternoon, I found in the bottom of the vessel in which the urine had been kept a small calculus, which was mostly uric in its character, though the external covering, which was very rough, must have been of an ammonio-phosphatic character, as it soon crumbled off after exposure to the atmosphere, leaving only a small globular body, not more than half a line in diameter.

(*e*) EXANTHEMATOUS DISEASES.

Remarks on Scarlatina, Measles, Variola and Varicella.

Dr. L. P. YANDELL, Jr., Professor of Therapeutics and Clinical Medicine, University of Louisville, communicates to the *American Practitioner* for June, 1877, an article upon this subject:—

Scarlet fever, or scarlatina, was known to the profession as early as the sixteenth century; but its specific nature was first established by Morton about the middle of the seventeenth century. (Ziemssen.) Up to the present day the profession is not of one mind as to the best treatment for this disease. Our main reliance is in attention to general conditions, not neglecting local symptoms. Quinia, iron, and heart tonics, together with baths and anointings, comprise the most promising remedies. Belladonna, either as a preventive or curative agent, is no longer thought of. As to the name and symptoms of scarlatina, there is no dispute, but its contagiousness, though generally conceded, has some firm opponents.

Measles, formerly denominated rubeola, and now called morbilli by many writers, is said to have been known during the fourteenth century, though its specific nature was not established till about the middle of the last century. The term morbilli means literally "little disease," and was first employed, according to Hebra, to distinguish measles from the greater and graver disease, the plague. Measles is from the German word "maser," a spot; and rubeola signifies a reddish color. By this name, in former times, several distinct diseases were called. At the present, rubeola is frequently used to describe what is otherwise called rötheln, or German measles. This is an extremely insignificant malady, closely resembling the milder cases of measles. Little, if any, treatment is necessary, and prognosis is favorable.

In the management of measles, much improvement has been made within the last quarter of a century. The self-limited nature of the disease, its brief duration, and its tendency toward recovery, in the great majority of cases, are now recognized facts; and it is only for the relief of symptoms of unusual severity, or for some complication, that medical interference is demanded. The patient should be allowed food and drink, hot or cold, at will, and good ventilation should be secured.

Variola is probably of Eastern origin, and is of incalculable antiquity. A

hundred years ago it was the most dreaded and the most fatal of all diseases. At that time it was far more exceptional for persons to escape small-pox than it is now for them to contract it. It was estimated that from ten to twelve per cent. of all the deaths then occurring were due to this scourge. Jenner's great discovery, vaccination, though still violently opposed by a few medical men, has robbed the disease of much of its terror; and it is believed by some that it not only prevents small-pox, but that its influence on the race in general, by heredity, has been to diminish the virulence of the disease. Were vaccination universally performed, it is probable that total eradication of variola would eventually be accomplished. The contagiousness of small-pox, although almost universally admitted, has its opponents.

In the treatment of variola, we have made no late advances. To make the patient as comfortable as possible, to treat symptoms, to assist nature, comprise all that we can safely do.

Varicella, or chicken-pox, though one of the specific exanthems, is of no importance, and requires no treatment.

The Relation of Rotheln and Measles.

Dr. J. S. BRISTOWE writes to the *Lancet*, August 25th, 1877 :—

I freely acknowledge the very great resemblance there is between measles and rötheln, and that I would by no means undertake in every instance to distinguish a case of the one disease from a case of the other; but close resemblance does not necessarily imply identity, and, for my own part, having seen a great deal of both diseases, I have no hesitation in ranging myself with those who maintain their absolute distinctness from one another, and, in confirmation of my opinion, beg leave to lay before your readers the following two narratives :—

1. A little more than nine years ago, all my children then born, seven in number, had measles, which was introduced among them by my eldest boy, who had contracted it at a public school to which I was physician, and where I had, therefore, full opportunity of observing the course of the epidemic. Four years ago this summer, while at the seaside, my two eldest daughters were attacked, within a week of one another, with what I regarded as rötheln in a well-marked form. It did not spread from them to any other of my children, although at that time two others had been added to their number, and these two had never had measles. About fifteen months ago, one of the two children who had not hitherto had measles, and who had been exposed to the contagion of rötheln, were brought into relation with the poison of measles and contracted the disease.

2. Three years ago last Christmas, five of the children of a near relative of mine had measles in a characteristic form. In the following March, the resident governess, who had been exposed to the contagion of measles at Christmas, but had not become affected by it, had a well-marked attack of rötheln, and a week or ten days afterward one of the children, who had had measles three months previously, had also an attack of rötheln. The disease did not extend. I attended the family.

These narratives seem to show two things, viz.: First, that rötheln and measles are not mutually protective, as they should be if they were modifications of the same disease; and second, that rötheln is not nearly so contagious as measles. I may add that I have witnessed many other outbreaks of rötheln besides the above, and that the distribution of the disease has, as far as I could learn, in no case been influenced by the previous occurrence of measles.

OBSTETRICS AND DISEASES OF WOMEN AND CHILDREN.

I. OBSTETRICS.

Gestation Prolonged to Four Hundred and Forty-two Days.

Dr. J. D. BRYAN, of Louisburg, Kansas, reports to the St. Louis *Medical and Surgical Journal*, July, 1877, the following case:—

Mrs. E., aged twenty-five years, became pregnant February 10th, 1876. June 17th she "felt motion;" on the following day consulted me. The motion increased until July 28th, when she was threatened with miscarriage, but by rest and opiates it was prevented; in a week she was up again. During the time of the threatened miscarriage the movements of the child were lively; from that time on, I saw her frequently. I had her wean the child at the breast as soon as I knew her to be pregnant; her health improved and she became quite robust; she expected to be confined about the middle of November, 1876. This time came and passed, and the next month, and still no confinement, nor did it occur until the 26th day of April, 1877, making ten months and nine days from the time of quickening, or one year two months and sixteen days from time of conception; neither was the child unusually developed, except that it was stronger and more active, a boy, and weighed nine pounds.

Here we have a pregnancy prolonged 442 days. The longest case I find recorded is by Professor Meigs, of 420 days; the next by Dr. Atlee, of 356 days; but neither of these eminent men say anything of the length of time the children were carried after quickening occurred; at least, it was not alluded to in the report I saw. If we allow this case the usual time for quickening, four and a half months, it would make the entire time 449 days, which I think would be more exact than the other. As the facts as related above of this extraordinary case may be now established beyond cavil, I have felt it my duty to place it on record, on account of its great importance in many medico-legal questions affecting the rights of heirs, and it is of still greater importance in defending women in domestic life from unjust aspersion. This lady's husband was with her from first to last, fortunately.

The Prophylactic Treatment of Placenta Prævia.

Dr. T. GAILLARD THOMAS, Professor of Obstetrics and Diseases of Women and Children, College of Physicians and Surgeons, New York, communicates to the *American Practitioner*, May, 1877, his views upon this subject, in the following words:—

Labor once being established, the means at our disposal for controlling hemorrhage, with its double danger, may all be classed under two heads: first, those effecting control of the flow while the os dilates, those, in other words, which enable us to await the progress of labor without serious risk to life; and second, those which, disregarding the flow of blood, are addressed to a delivery of the child, so

rapid that it may be accomplished before this flow can effect a fatal result. The cervix uteri represents a strait through which the child must, sooner or later, necessarily pass; and this strait has, in the attached placenta, an element of great danger which will be made active by such passage. The child, in its passage of this point, may be likened to a man who needs must pass a narrow portion of a defile where an inevitable, unavoidable danger awaits him. With this he may deal in two ways, which differ entirely from each other: first, he may resort to measures for suppressing the danger which he cannot remove, while he passes onward at his leisure; second, he may use no means for such suppression, but, trusting to a bold dash, he may rely for safety upon the rapidity of a determined advance and rush past the point of danger.

To state the matter, in reference to placenta prævia, in other words: first, we may alter the state of affairs at the cervix, so that dilatation may occur without hemorrhage; second, we may hasten the delivery of the child, and render a gradual dilatation of the cervix unnecessary by rapid and immediate removal.

The means at our command for accomplishing these indications may thus be tabulated and presented at a glance:—

Means for controlling hemorrhage while the os dilates.
1. Distention of cervix by water-bags.
2. Evacuation of liquor amnii.
3. Partial detachment of placenta.
4. Complete detachment of placenta.
5. The tampon or colpeurynter.

Means for hastening delivery of child.
1. Ergot.
2. Version.
3. Forceps.
4. Craniotomy.

The means at our disposal for fulfilling both these indications are very efficient, and yet they leave a vast deal to be desired. They leave a hiatus which never can be filled, for the reason that great danger attends sudden losses of blood occurring at uncertain periods for two or three months before labor sets in. Even admitting that the means just mentioned are almost perfect, until some method of control can be established for those almost inevitable and often dangerous ante-partum flows of blood, the element of danger attendant upon this period of utero-gestation cannot be removed. And of what means can the most sanguine ever hope to avail himself to control the separation of placenta from uterus, at this time and under these circumstances?

Something more is surely wanting than means for conducting to a favorable issue a labor, complicated by placenta prævia, which has once begun. Some safeguard is required against the dangers of the three last months, which develop themselves unexpectedly, when no medical aid is at hand, and work their results so rapidly that it usually cannot be obtained until great mischief has been done.

Let us pause here for a brief examination of the statistics of placenta prævia as regards mothers and children. It is a well-known fact that such statistics are very unreliable, and special doubts have been recently cast upon those relating to this subject. Why the statistics relating to placenta prævia should be less reliable than others it is difficult to conceive. At least this much we may safely deduce from them, an approximate idea of the degree of danger attending the condition. So serious are its results that, although it occurs not oftener than once in five or six hundred cases, which is the proportion computed as correct by some authors, it

xerts a marked influence upon the statistics of obstetrics. According to the calcu-
ıtion of Sir James Simpson, based upon the analysis of three hundred and ninety-
ine cases, one-third of the mothers and over one-half of the children are supposed
› have been lost; and Read, in his admirable essay, computes the mortality as one
ı four and a half mothers, while a large majority of the children are lost.

Surely these statistics offer us no reason for relaxation of effort, no grounds for
atisfaction with what has been attained by the successors of Portal, no inducement
›r believing that our present resources are equal to the demands made upon them
›y this dangerous complication of parturition. And why are these inherent dangers
f placenta prævia so active and so prolific in fatal consequences? Let me reply
o the question by three formulated statements:—

First. The dilatation of the cervix for the passage of the child unavoidably
xposes both mother and infant to great danger from placental detachment and
ıemorrhage.

Second. Repeated hemorrhages occurring during the last three months of preg-
nancy; the woman at the time of labor is usually exsanguinated, exhausted, and
depressed, both physically and mentally.

Third. Profuse flooding generally occurring with the commencement of labor;
the medical attendant is often not at hand, and reaches his patient only after a
serious, perhaps a fatal, loss of blood has occurred.

There is but one method at present at the disposal of the obstetrician, by which
the evils attendant upon the three last months of utero-gestation, and upon labor
thus complicated, can be avoided. It is the induction of premature delivery after
the period of viability of the child. By this procedure a rational, and it appears
to me a perfectly warrantable, means of avoidance of a great danger is offered to us;
one which presents in itself no dangers comparable with those of non-interference,
and one which, while it removes the absolute hazards attendant upon delay, relieves
that wearing anxiety which harasses patient, friends, and physician.

Fortunately this condition is usually announced during the last months of utero-
gestation by premonitory signs of reliable character, and thus we may empty the
uterus before the vital forces of both mother and child are exhausted by hem-
orrhages, the results of repeated detachments of the placenta. My conviction is
that, in every case of undoubted placenta prævia, in which the flow of blood
threatens, by its amount or frequent recurrence, the loss of mother and child, pre-
mature delivery should be induced. What objection can be urged against it, other
than that a child of less than nine months of intra-uterine life does not have as
good a prospect of life as one which has arrived at full term? In the case which we
are considering, even this is invalidated by the fact that an eight-months' child out
of the uterus, and depending upon pulmonary respiration, has a decidedly brighter
prospect for life than one in that cavity depending for aëration of its blood upon a
crippled and bleeding placenta. For the mother, how incomparably greater the
safety which attends an emptied and contracted uterus! By inducing delivery
during the ninth month of pregnancy, we should be dealing with a woman who is
not exhausted by repeated hemorrhages; we would be in attendance at the moment
of cervical dilatation, and consequently at the moment of danger; and we would be
able by hydrostatic pressure to control hemorrhage in great degree, while at the
same time the period of dilatation of the cervix, which constitutes the time of maxi-
mum danger, may be rapidly accomplished. Under these circumstances, in the
words of Angus McDonald, "nothing can be gained by delay, if we are satisfied

that the bleeding is really serious, and if continued would lead to great risk to the mother's life and health."

With these considerations before me, and with a certain amount of experience to support them, I cannot resist the conviction that, when premature delivery becomes the recognized and universal practice for placenta prævia, the statistics of the present day will be replaced by others of a far more satisfactory kind.

I freely admit that this must be proved hereafter by absolute clinical demonstration; and one of the objects of this paper is to offer a small amount of such proof. As freely do I admit, too, that evil may arise from an injudicious and unwarrantable resort to this plan of treatment in cases of a character too trivial to call for such radical interference. But does not this objection apply to every resource in surgery? The method being a good one, we must rely for its judicious application upon the good sense and conservatism of the individuals who resort to it. There is not an operation in obstetric surgery which is not sometimes performed upon insufficient grounds, and to the detriment rather than the benefit of the patient in whose behalf it has been evoked. So will it be with this measure. But let the misguided practitioner bear the burden of his own error; the operation should not be made to do so for him.

Upon those practitioners who have used with satisfaction the tampon until version has become practicable, and who, in reliance upon these excellent and efficient means, set their faces against the innovation here advocated, I would urge a thoughtful consideration of the statistics of placenta prævia. Accepting those offered us by Simpson, Read and Trask, approximatively, the prognosis for the mother is about as grave as that of patients submitted to the capital operation of ovariotomy. For the child it is much graver. We must, therefore, either regard the statistics to which I have made allusion as utterly worthless and unreliable, for which conclusion no warrant whatever exists, or we must admit that the claims of any means which offers immunity, to any decided degree, from the ordeal of so dangerous a parturition and labor, should be most carefully weighed before being thrown aside.

Five years ago a practitioner in this city, a man of very large obstetric experience and decided views as to practice, consulted me about a case of placenta prævia. His patient, a multipara, had, during the eighth month of utero-gestation, had repeated and severe losses of blood. Though much weakened by these she had, at the time of my becoming connected with the case, arrived at the end of the first week of the ninth month. Every symptom, both rational and physical, pointed to the existence of placenta prævia, and I urged premature delivery upon these grounds: First, the child was alive and might now be saved, while it ran greater risks than those attendant upon this process from hemorrhages which were sure to occur during the next three weeks. Second, the mother had bled very profusely, and might at any time bleed to death, or at least to a point of anæmia which would render even natural delivery dangerous. Third, even if the pregnancy could be carried to term, it was almost certain that during labor so severe a loss of blood would occur that version would become necessary, which would, in the exsanguinated condition of the patient, prove a dangerous resource.

I pressed these considerations strongly, but without avail. The doctor had relied heretofore, through a long practice, upon the tampon and version, and would rely upon them now; the bridge that had so often borne him in safety would probably do so now. He agreed, however, to compromise the matter thus: the husband was to seek him instantly in case of another alarming hemorrhage; he would send at

once for me, and we would empty the uterus forthwith. In forty-eight hours from that time, at three o'clock in the night, the husband was awakened by a cry from his wife that she was flowing freely. As rapidly as possible he went for the doctor, and then for me; but over an hour was consumed before we could reach the patient, owing to the necessary delay in dressing on the part of the husband and ourselves, and the time occupied in traversing the distance between our own houses and that of the patient. Arriving there we found her lying dead, in a mass of blood, which filled the bed and dripped through the mattress in a stream. The child was at once delivered, in the forlorn hope that it might still be alive, but it likewise was dead. The placenta was found to be centrally attached.

It may very pertinently be asked whether I believe that premature delivery, practiced when I urged its adoption forty-eight hours before this, would have saved one or both of these lives? I unhesitatingly reply, I do; in all probability the life of the child, and almost surely that of the mother. I do not say that I feel sure of this, but I do say that such is my decided belief, based upon no theory worked out in the closet, but upon experience founded upon clinical facts.

Four Successive Ruptures of the Uterus in the same Patient, with Favorable Termination.

Dr. J. M. Rose, of West Winfield, New York, reports to the August number of the Chicago *Medical Journal and Examiner*, the following interesting case:—

Mrs. P. D., a native of Ireland, aged thirty-two years; has resided in this country about twenty years. She is the mother of two children, the oldest four and the youngest two years of age. Mrs. D. was taken with labor pains, June 1st, 1869. The pains were regular, the head presented, the os dilated well, and everything promised a favorable termination of the case within a few hours.

After she had been in labor about five hours, she had quite a severe pain, and complained more than usual. This pain was followed by fainting, with general prostration, and in a short time with great tenderness over the whole abdomen. Upon introducing my hand into the vagina, I could feel nothing of the child. Suspecting a rupture of the uterus, and thinking that the patient would die, I sent for my friend, Dr. E. King. After consultation, we concluded to get the fœtus away if possible. I gave the patient a dose of opium and some milk punch. I then proceeded to deliver her. I passed my hand through the os, and finding a rupture, passed my hand through the opening into the cavity of the abdomen. I succeeded in finding the feet, brought them down and delivered a dead child in about twenty minutes, together with the after-birth, which was also in the cavity of the abdomen. She bore the operation quite well. I ordered her to take an eighth of a grain of morphine in connection with two grains of quinine every four hours, unless she rested, with beef tea and milk punch for food. I also gave half a drop of fluid extract of veratrum viride every four hours.

June 2d. I found the patient better than I expected; pulse 80; temperature, nearly normal. Continued treatment.

June 3d. Pulse 80; more irritable; bowels very tender to the touch. Continued treatment.

June 4th. In the morning, pulse 90; in the evening, 120. Bowels, tympanitic; vomiting; can retain but very little nourishment. She sleeps but little; pain not very severe unless she is moved, or pressure is made on her bowels. Stopped veratrum viride.

June 5th. Pulse 120, morning and evening; vomiting; tongue red; gave sme of chloroform, which stopped the vomiting.

June 6th. Pulse 110, morning and evening; bowels less tender, and have moved once. Continue morphine and quinine.

June 7th. Pulse 100 in the morning, 110 in the evening; rested quite well. Skin moist the most of the time.

June 8th. Pulse 100. Calls for food; wants meat and potatoes. She has lived principally upon milk punch and beef tea up to this time.

June 9th. Pulse 100; tongue red; symptoms favorable. Treatment continued.

June 10th. Pulse 95; bowels moved four times. There is considerable pain. Increased the amount of morphine.

June 11th. Pulse 95; bowels quiet; is better.

June 13th. Pulse 90; bowels quick; no tympanitis; tongue appears better.

June 15th. Continues to improve; can turn in bed without help.

June 17th. Still improving; pulse 90; tongue moist and not so red. Continue quinine, with the addition of morphine at evening.

June 20th. Improving; patient wanted to get up. I told her to wait.

June 24th. Pulse 85; skin natural; sat up a short time.

June 30th. Pulse 80; tongue looks quite natural; bowels tender to pressure; can move about by being very careful. Continue tonics, iron and bark, with careful diet. In a short time she was at work.

I was again sent for to attend Mrs. D., in confinement, April 1st, 1872. I found her in good spirits, thinking that she was going to get along all right. The pains went along as usual for three or four hours, when they suddenly stopped, and were followed by great prostration and tenderness of the bowels. Suspecting that the uterus had again ruptured, I made an examination, and found that the head had receded, and passing my hand into the uterus, I found that my suspicion was correct. I proceeded to deliver as before, by passing my hand through the rent in the womb and bringing down the feet. I delivered her in a few minutes. She bore the operation very well.

April 2d. I found the patient quite comfortable; gave anodynes with supporting treatment.

April 3d. Bowels very tender; pulse 100; temperature 99; gave aconite in addition.

April 4th. Pulse 100; temperature 100; bowels tympanitic.

April 6th. Pulse 110; temperature 101; vomiting; bowels quite tender, with purulent discharges from the womb.

April 9th. Pulse 110; temperature 100. Is taking light food, beef tea and milk punch.

April 15th. Pulse 100; temperature 98; appetite good; symptoms quite favorable; was lying in bed and taking care of her two children sick with scarlet fever. She improved gradually, and in about a month was doing light work. In connection with the use of the anodynes and tonics, I applied turpentine to the bowels.

It may be proper to state that the long intervals between my visits were due to the state of the roads, which were in such a condition as to render it impossible for me to visit her as often as I thought she needed.

On May 18th, 1874, Mrs. D. was again taken with labor pains, which lasted about two hours and stopped suddenly, followed by feelings of faintness, with tenderness over the abdomen. A physician had been sent for, who told her that the pains had

opped, and that perhaps they would not come on in a week or more. On the rength of his assertion they waited until the morning of the 20th, when they sent or me. Upon making an examination I found the os partially dilated, so that I ould introduce my hand and pass it into the womb, when I discovered that it was gain ruptured. I told her husband that there was great danger of her not recovring, when he said that I must wait, before doing anything, until the arrival of the riest, as they had sent for him, and he would be there in a few hours. I left, telling im that I would be back at 1 P.M., and advised him to send for Dr. King to meet ne at that time. The doctor came, and confirmed my diagnosis, and after the priest ad got through with the patient, we proceeded to deliver her. She had become so nder that is was necessary to give her chloroform. Dr. King gave chloroform. As oon as she became quiet I introduced my hand and brought away the placenta, hich lay in the abdominal cavity, near the opening. I then passed my hand again; he head was in the lower portion of the bowels. I carried my hand up and got hold f the feet, and delivered her in a few moments.

The child had been dead so long that the skin would slip off upon handling.

After delivering the child I introduced my hand again. I could pass it up to the pper portion of the abdominal cavity, and move it about without encountering any dhesions or obstacles of any kind. The rent in the womb was transverse and in its osterior portion; it felt as though half of the womb had been cut off with a knife. he womb had contracted to about the size of the two fists. None of the contents f the abdomen passed through the rent. She bore the operation very well.

May 21st. Patient apparently doing well; takes beef tea, milk punch, and opium.

May 22d. Pulse 110; bowels tympanitic; fever, with darting pains; great tenderness. Rested some last night.

May 23d. Pulse 120; temperature 100. She had been vomiting, and had had three movements from the bowels, which caused her to be in great pain. Continued opium and quinine, with gelseminum every four hours.

May 24th. Pulse 120; temperature 102. Had a diarrhœa; bowels moved quite often. Added subnitrate of bismuth to powders.

May 25th. Diarrhœa continued. She had twenty or thirty movements. Temperature 100; pulse 120.

May 27th. Pulse 107; temperature normal. Some appetite; bowels moved four times. Continue bismuth and opium treatment.

May 29th. Pulse 94; bowels moved twice. Continued treatment.

June 1st. Pulse 90; bowels regular. Sat up an hour yesterday. All favorable.

Since writing the above Mrs. D. has been delivered of a living child, after another rupture of the womb.

She was taken sick about one o'clock in the morning of February 28th, 1876. I saw her at a quarter past twelve the same day. She had been having regular pains for about two hours. About twenty minutes before I saw her she had a pain, and the waters broke; she said she felt a great movement of the child, she felt it pressing up under her ribs. I made an examination, and could just reach one foot with the finger. Introduced my hand and brought down the feet, and delivered a living child as soon as possible. The delivery was accomplished in about ten minutes, before the placenta was detached from the womb. There was strong pulsation in the cord after the delivery of the child.

29th. Mrs. D. is quite comfortable. Pulse 85; not much fever. She is suffering no more than is usual after an ordinary delivery.

30th. Doing well. Pulse about 80; temperature natural. No great tenderness of bowels. A little bloody discharge from the vagina.

March 5th. Mrs. D. is doing finely.

Intra-Uterine Injections in Post-Partum Hemorrhage.

We extract from a paper appearing in the Boston *Medical and Surgical Journal*, July 26th, and read by Dr. SAMUEL W. TORREY, of Beverly, before the Medical Society of Massachusetts, the following:—

Post-partum hemorrhage, with its sudden emergencies and its instant demand for energetic treatment, is a subject of great importance to every general practitioner, and particularly so in connection with the question of treatment by means of intra-uterine injections, a practice which is becoming quite common, but the merits of which are still *sub judice*. Of the efficacy of intra-uterine irritant astringent injections there is no doubt; it is the danger attaching to the practice which I shall allude to especially. It is a generally conceded fact that injections into the uterus, in any condition of that organ, are dangerous. Penetration of the fluid through the Fallopian tubes, even when every precaution has been taken by experienced operators to insure the return of the injection through the dilated cervix, has been the cause of so many evil results that Dr. Barnes says, "I rarely employ them now, except in urgent danger from menorrhagia."

Stimulated by Dr. Barnes' example and teachings, there has arisen among many eminent obstetricians an enthusiastic advocacy of the use of injections of the per-salts of iron in post-partum hemorrhage, which have been used so frequently that we are compelled to one of two conclusions, either that there has been an alarming increase of emergencies demanding such heroic treatment, or that the injections have sometimes been used unnecessarily. That the use of iron injections is attended with special risk is evident from the statement of Dr. Ringland before the Dublin Obstetrical Society, that out of forty-five cases of post-partum hemorrhage treated by the perchloride of iron, eleven terminated fatally, an undeniably large proportion of deaths from this cause. In a recent discussion before the Obstetrical Society of Edinburgh, Dr. Matthews Duncan affirmed that, "unfortunately for the boastings, women had died from post-partum hemorrhage apparently more than ever, and even when the vaunted remedies of perchloride of iron and transfusion, both declared to be inestimable and sovereign, had been employed with skill."

One of the risks which must always attend the introduction of the salts of iron into the uterine cavity after delivery, is that the coagulating effect may not be limited by the uterine walls, but may extend to the venous circulation, with possible death from embolism. Sudden death has followed injections of solution of iron into nævi, accounted for by post-mortem evidence of coagulated blood in the vessels and heart; is it more strange that the iron can reach the heart by way of the valveless uterine and pelvic veins and the vena cava? Dr. Barnes does not consider the two conditions analogous, but they are, at least, very similar; the iron is introduced into the circulation, though in both cases it is intended that there shall be a local coagulation only. Playfair's explanation of the action of the iron, "We now have abandoned contraction as a hæmostatic, and are trusting to thrombosis," implies, although it does not verbally recognize, the danger of embolism. Death has occasionally followed suddenly, from this cause. Dr. Cederskiöld reported to the Swedish Medical Society a case where the patient died before the injectio (one to seven ferri perchl.) was completed. The autopsy showed dark-brown blood clots in all the

vessels from the uterus to the heart, as well as in the peritoneal cavity. Moreover, in this case, the vessels were filled with air bubbles, making an instructive example of the danger of penetration of the tubes, entrance of air into the circulation, and chemical destruction of the character of the blood in the venous system. An instance of the danger attending the use of iron solutions in the surgery of the uterus is given by Dr. Spencer Wells, in the London *Medical Times*, 1862: "Serious cardiac and pulmonary symptoms, with the almost instantaneous appearance of a rash-like erysipelas or scarlatina all over the body, followed the application of the tincture of perchloride of iron to a cauliflower excrescence of the uterus; in this case clots of various sizes were found in almost every vessel examined after death." In the London *Lancet*, 1867, Dr. Playfair reports three cases in which symptoms of pulmonary embolism appeared after labor, the patients all recovering. In two of these cases there was post-partum hemorrhage, in one of which iron was injected. In his remarks upon these cases he says: "In two of the three there was post-partum hemorrhage, and a tendency, therefore, to coagulation, from the altered condition of the blood," which condition he considers to depend upon excess of fibrin favoring spontaneous thrombosis; he makes no mention, however, of the iron injection as a probable cause of the embolism, which is somewhat singular when he explicitly states that its efficacy consists in its plugging the sinuses with thrombi. Had he called attention to this fact in his remarks upon the three cases of embolism, it would have rendered still more forcible his conclusion that "the main element in the treatment of such cases is the most rigid rest."

An accident liable to follow iron injections, and one that will serve more than anything else to deter physicians from using this treatment, is the occurrence of septicæmia. Dr. Sims recently stated that, in his opinion, the advocates of the practice in London are beginning to be afraid of the injections for this reason. The septicæmic symptoms are the result of the retention and decomposition *in utero* of the hard clots formed by the blood and the solution of iron. Dr. Emmet writes, "Under no consideration would I inject persulphate of iron into a cavity to arrest hemorrhage. It possesses in itself no styptic properties, and only coagulates a mass of blood, which then acts mechanically. The blood is so destroyed in character by contact with the persulphate, that it undergoes decomposition within a few hours. From this source the patient frequently becomes blood poisoned before any septic element has been generated elsewhere." Dr. Thomas considers the danger of septicæmia from this source as "very grave." Dr. Lusk lost a patient from this cause, concerning which he writes me that it has warned him never to use a remedy to coagulate the blood directly in such cases. The cases reported by Dr. Snow Beck, prove to any but prejudiced observers that the septicæmia which caused the death of the patients was due to the effect of the solution of iron. Reports of fatalities asserted to be due to iron injections have been set aside as not proved, by enthusiastic advocates of the practice, who have affirmed that septicæmia, metro-peritonitis, pyæmia, etc., are just as likely to follow post-partum hemorrhage treated by what are called "ordinary means." Were this true, it must be considered bad practice not to use the iron injection upon the immediate occurrence of hemorrhage, before excessive loss of blood shall of itself predispose to subsequent inflammation and blood poisoning. The postponement of this treatment until other means have been tried in vain, is a tacit confession that the risks alluded to are increased by the effects of the iron. Dr. Barker mentions first, among the causes of septicæmia, the decomposition and absorption of uterine clots, and with regard to peritonitis, he says,

"It has long been settled by the best pathologists, that peritonitis is rarely a spontaneous and primitive disease. It is generally associated with some inflammation, either of the uterus, the ovaries, the Fallopian tubes, or the broad ligaments." It is manifest that inflammation of these parts is less liable to occur spontaneously than as a consequence of the hard, irritating clots formed by the iron. In any condition of the uterus a dangerous application, the dangers attending its use are greatly increased by postponing it until the contractile power of the uterus is lost, and all the conditions for introduction of the iron into the veins or through the Fallopian tubes into the peritoneal cavity, with possible septicæmia as a result, are in greatest force. Even those authorities who sanction the use of iron injections advise subsequent measures to reduce to a minimum the possibility of danger from decomposition of uterine clots. On the same page, in his work on Midwifery, Dr. Playfair reassures skeptics by asserting that no one has yet brought forward any cases in which the evil effects of injections of perchloride of iron have been conclusively proved, but a little lower down he refers to a case of his own, in which septicæmia followed the use of an injection; upon consideration of which case he advises the use of antiseptic injections, to prevent the decomposition of the retained clots. Dr. Chadwick writes that it is his "belief that many of the fatal results observed after injections of iron might be prevented by subsequent disinfecting injections." To prevent infection, the antiseptic must be used within a few hours after the iron injection, must be frequently repeated, and, with however much care applied, may fail to reach the thrombi which Dr. Playfair supposes to fill the sinuses, in which event complete disinfection is not secured. Theoretically the use of subsequent antiseptic injections might be rendered needless by combining with the solution of iron a proportion of salicylic acid, which Bartholow asserts to have "the power to prevent fermentations and putrefactive decomposition," and which, also, judging from the sharp temporary irritation I have seen to follow its application to the cervix uteri, might increase the excito-motor action of the injection. That iron injections almost invariably and immediately check post-partum hemorrhage is undeniable, but it is by no means proved that their styptic or coagulating property, upon which their value as hæmostatics has been asserted principally to depend, is the most important factor in their action. Dr. Barnes states that the blood is instantly seized and coagulated at the mouths of the vessels, and also that the inner surface of the uterus is constringed by the action of the iron, this constriction being a further aid in closing the vessels. I think that the constringing action alone, supposing contraction does not follow the injection, is the essential factor in checking the flow, and that coagulation alone could not accomplish that result unless the solution penetrate the sinuses deeply. The effort to stop a bleeding in other parts of the body—for example, from a tooth socket—is sometimes unavailing, even though the undiluted tincture is used and the cavity plugged; the sinuses, kept open by uterine relaxation, offer an analogous condition, and it is unreasonable to suppose that a solution of iron, of which nine-tenths are water, if Dr. Barnes' directions are followed, can check by mere coagulation a profuse post-partum hemorrhage. If this view be correct, the coagulating property is an unnecessary element of danger, and simply a disadvantage which should be overcome by substituting for the iron an agent of equal astringent power, one that does not coagulate the blood and that is equally effective in exciting uterine contraction, which is the only safe hæmostatic. Many obstetricians claim these advantages for iodine. Its use as a remedy for post-partum hemorrhage was first advocated by M. Dupeirris, of Havana, in the *American Medico-Chirurgical Maga-*

zine, 1857, who, Playfair states in his work on Midwifery, has reported twenty-four cases in which he applied it with immediate successful result, and no subsequent ill effects. Dr. Emmet states that he has used Churchill's tincture of iodine to maintain uterine contraction after the removal of fibroids for more than ten years, and its action is certain to arrest bleeding unless there exist some impediment to the proper contraction of the uterus; he also considers it a most valuable antiseptic. He writes me that for years past he has advised the use of hot-water injections and Churchill's iodine in post-partum hemorrhage, and that both have been used in New York at his suggestion. Dr. Barker writes that he has used iodine twice with satisfactory results; Dr. Peaslee, that he prefers iodine to iron, "as being quite as efficacious and not so objectionable; the after-effects of iron are often bad, those of iodine not so, as far as I know." Dr. T. G. Harrison reports a case of hemorrhage successfully treated by injecting two drachms of Churchill's iodine. At a meeting of the American Medical Association, 1876, Dr. Larrabee, of Kentucky, reported that iodine was much used in Louisville in such cases. Dr. Wilson, of Pennsylvania, in a case of irrepressible hemorrhage that continued several days after delivery, had at last resorted to tincture of iodine. The uterus, although only three or four drops were injected, at once contracted and remained so. In a valuable paper, entitled "Injections of Tincture of Iodine into the Cavity of the Uterus after Delivery," read in 1874 before the New York Medical Society, Dr. J. D. Trask makes the following statements: "As an excito-motor agent, iodine is probably at least equally good (as iron), while incapable of causing the formation of dangerous thrombi in the uterine vessels. . . . The application of iodine to the lining membrane of the uterus is probably of all things the surest means of counteracting a tendency to absorption of septic matter after delivery. Since adopting the practice of injecting iodine after operations upon the interior of the uterus, Dr. Emmet has not encountered a single case of septicæmia." Dr. Trask disavows the position of claiming positively for iodine a superiority over iron, as he thinks that in extremely rare instances it may be impossible to excite uterine contraction, in which cases the iron is theoretically more powerful; but my investigation does not show me any cases in which the iodine failed to induce contraction. That iodine is a direct exciter of muscular action, is shown by its effect upon the non-gravid uterus. In the *Lancet* for January 6th, 1866, Dr. Murray states that "the muscular contraction that follows this injection is remarkable, the tube carrying the iodine being tightly grasped, so that its reintroduction at the time is extremely difficult." Drs. Barker, Emmet, Wilson and Harrison have used the undiluted tincture, a practice much more likely to be followed by immediate contraction than either diluted iodine or iron. Incapable of causing the formation of thrombi, and therefore not demanding the use of subsequent disinfecting injections, requiring but a small quantity if used in full strength, hence reducing the danger of penetrating the tubes and sinuses, we should be justified in using iodine much earlier than iron, thus preventing absolute loss of contractile power, and being saved the necessity of resorting to a remedy of possibly greater power and certainly greater danger.

Of injections of cold water I will only say that, though widely recommended, they are not to be depended on if postponed until great exhaustion occur; if not followed by immediate contraction their prolonged use, by lowering vitality, does much harm. Of hot-water injections Dr. Emmet asserts that "very hot water is a prompt exciter of uterine action." Dr. Windelband states that he has used injections of water at about 100° Fahr. in twenty-one cases of abortion, in cases of severe hem-

orrhage from placenta prævia, in post-partum hemorrhage, etc., and he is convinced that the hot water exerts a far more energetic action on the muscular structure of the uterus than cold water, either alone or with astringent remedies in solution, and he has never found any disadvantageous results.

Injections of matico, vinegar, lemon juice, and other astringent and irritating substances, have been brought into notice as invaluable in treating post-partum hemorrhage, but certain strictures apply to all: entrance of air into the circulation, penetration of the tubes and sinuses, with possible systemic blood poisoning as results, attach to each. Because the use of intra-uterine injections in post-partum hemorrhage, especially of those containing iron, is becoming common, I have deemed it not inopportune, by setting forth the views of prominent obstretricians, to call attention to the dangers of the practice rather than the advantages, for heroic measures sanctioned and lauded by high authorities are sometimes blindly resorted to by physicians of more limited experience. That such injections are sometimes the only hope of safety in post-partum hemorrhage may not be gainsayed, but it should also be kept in mind that dependence upon such remedies causes too ready resort to them, and, more than that, the neglect of the most important part of the treatment, *prevention*. Dr. Trask says, very justly, in alluding to the statement which Dr. Hicks made with regard to having employed the iron injections "a great number of times," "No matter how extensive a man's practice may be, he can scarcely have met with a great number of cases in which the conditions are those which Dr. Barnes prescribes," namely, absolute loss of contractile power. That cases of alarming flooding are not checked before the necessity arises for styptic injections is sometimes the physician's fault, for it is his duty, not the patient's, to see that the means for meeting such an emergency are always within reach. His obstetric bag should contain not only his forceps and his favorite styptic, but also ergotine, brandy, ammonia, morphia, ether, hypodermic syringe, and hand-atomizer. If none of these are needed for ninety-nine cases out of one hundred, in the hundredth case the trouble of carrying them will be amply repaid by having them at hand when needed, and the physician may be spared the unsatisfactory reminiscence of a case of flooding which resulted fatally because the remedy which was sent for arrived too late. I have mentioned ether and an atomizer as necessary adjuvants, because several cases have been reported (one by Dr. Hicks and another in the *Medical Record*, April 7, 1877) in which ether spray applied to the hypogastrium was followed by immediate uterine contraction. This method of exciting reflex action possesses obvious advantages over the application of ice. From a consideration of the fact that in Dr. Wilson's case it was necessary to inject a very few drops only of tincture of iodine, we may conclude that the same effect would follow the same remedy applied upon a sponge or swab, thus substituting a safe for a dangerous method. This solution of iron may be employed in the same way or in a solid form, as has been done by Dr. Ringland, with results as immediately successful as those attending iron injections. Of this method Dr. J. More Madden writes me, "I have also, in a few instances, employed the solid perchloride of iron with very satisfactory results, but whether this was altogether due to the styptic I much doubt, as probably the introduction of the hand containing the salts into the uterine cavity had no small share in exciting the uterine contraction by which the hemorrhage was arrested," certainly a strong argument against the hasty use of intra-uterine injections.

Women who have suffered from hemorrhage in previous confinements, those who

are delivered by forceps, especially when under the influence of an anæsthetic, those who suffer from tedious labor dependent upon any debilitating cause, and those whose labors are exceptionally rapid, with very short intervals between the pains, are especially liable to post-partum hemorrhage; in all these cases anticipating measures are of great importance, and as it is never superfluous to reiterate useful directions, I will conclude by calling attention to several important points. In a case in which hemorrhage occurs, it is well to rupture the membranes as soon as the os is fully dilated, as Dr. McClintock recommended; to inject subcutaneously a dose of ergotine as soon as the head presses upon the perineum (ergot by the stomach is not so sure to act, and is useless if the hemorrhage occur immediately upon the birth of the child); always, and above all, to follow down the fundus with a firm hand, which shall not be removed unless it can be replaced by an equally trustworthy one, until firm contraction has existed for at least half an hour after complete delivery. I believe that in very many cases the binder is used too early, and that, however scientifically applied, it cannot exert compression as completely as does the hand. It cannot prevent uterine relaxation, and its early application over an imperfectly contracted uterus merely gives the physician a feeling of security which has no better foundation than that which the ostrich is supposed to have when it thrusts its head under the sand to escape danger—he hopes he is all right, but he lacks common sense. The emphatic direction of Dr. Meigs, in lecturing on post-partum hemorrhage, was, "Turn out the clots." If this were done thoroughly upon the immediate occurrence of flooding, and at the same time ether spray applied to the abdomen, the emergencies demanding irritant uterine injections would be exceedingly rare.

On the Surgical Treatment of Uterine Hemorrhage.

Dr. R. Stansbury Sutton, A.M., M.D., of Pittsburg, Pa., writes to the Chicago *Medical Journal and Examiner*, September, 1877, as follows:—

To the general practitioner of medicine, nothing is more alarming than excessive uterine hemorrhage. If it occur at, or prior to, the time of labor, from a placenta prævia, the practitioner recognizes the fact, and acts in accordance with established principles. But if the hemorrhage occur at the regular menstrual epochs, or between them, or if it is rarely absent, and a vaginal examination fails to reveal the cause, the medical man is often discouraged, from the fact that the cause of the hemorrhage is not apparent. In the last ten years it has been my fortune to meet with many cases of uterine hemorrhage. Fortunately they have all recovered. For the successful treatment of hemorrhage of this character, the first great remedy for the gaining of time, both for practitioner and patient, is a tampon. Tampons may be made of almost any material at hand. Soft linen or cotton rags are often employed. Some prefer sponges. These are often oiled before being packed into the vagina. Tampons of these substances thus prepared have been unsatisfactory to me. The tampon has soon become offensive, and required removal, having a foul odor, and adding to the discomfort and danger of the patient. I adopted, long ago, raw cotton as the best substance for the tampon, and pure glycerine as the best substance with which to smear it. The glycerine may be carbolized, but I do not find it necessary. The manner of making the tampon is as follows: Unfold the roll of cotton, and tear or cut off with scissors a piece fifteen or sixteen inches long, and as thick as your forearm. With the end of a stout string tie the cotton roll firmly, one and a half or two inches from either end. With the long end of the string

proceed as follows: Carry it parallel with the cotton roll for two or three inches, and cast a loop around the roll, and thus continue with the string to the end of the roll, when the last loop should be secured with a knot. The tampon is now smeared with glycerine and is ready for use. How will you apply it? If convenient, Sims' speculum may be introduced. If not at hand, having soaped the index and middle finger of the left hand, pass one or both into the vagina (the patient resting on her side), turn the palmar surface of the fingers to the perineum and draw the latter backward and downward. All clots having been removed from the vagina, the tampon is now passed into the vagina, with the index finger of the right hand, along the posterior surface of the fingers supporting the perineum. If the tampon is too large to be entirely received, the redundant portion is pulled out of the string, which is left hanging from the vagina. In removing it it will come away by traction just as regularly as it was introduced, and, in addition to being free from foul odor, will, if opened up, be found full of dry cotton. The advantages of this tampon are numerous: 1. It is soft. 2. It absorbs blood very slowly. 3. It is readily introduced. 4. It is easily removed. 5. It does not become foul. 6. If congestion of the uterus is the cause of the bleeding a free drain of serum from the engorged vessels is set up, and soaks into the tampon, and it is, therefore, in such cases what no other tampon is, viz., *curative*. If, however, it is the choice to prefer some astringent in addition to the glycerine, my habit has been to apply to the mouth of the cervix a bit of cotton, well saturated with a solution of fluid extract of matico and glycerine, and then to apply the tampon in addition. Iron as a styptic is effectual, as we all know, but it is objectionable for many obvious reasons in these cases. In addition to a good tampon in many cases, Barnes' water bags, sponge and laminaria tents are required to open the way to exploration of the uterine cavity.

In April, 1867, I was called to see Sarah, a colored servant. She was lying in a bed saturated with blood, almost pulseless, tongue pale and flabby. Her age was forty-eight years. For three or more years she had been occasionally the subject of these bleedings, but until now had been content with the thought that she was undergoing the change of life. An examination revealed a large fibroid polypus attached to the posterior lip of the uterus.

I ordered ergot and stimulants in liberal doses, and tamponed the vagina with soft linen cloths, pushed in about the polypus. On the following morning I carried a silver wire, armed with Gooch's cannula, around the neck of the polypus and strangulated it. Thirty-six hours later I severed the neck of the polypus below the wire, with the scissors, and removed it. Nourishing broths, and good nursing with tonics, gradually restored this woman's strength, and several months later I saw her in the city. Dr. E. S. Umstedter assisted me in the removal of the growth. A year after the operation this woman developed cancer of the breast. She refused any operative procedure until the axillary glands became enlarged, after which I declined to operate. The operation, however, was done by another, and she died a week afterward. Gooch's cannula and wire have given place to the wire écraseur and galvano-caustic loop, both of which are among the improved surgical instruments.

In the latter part of November, 1871, I was called to see Miss Mc., aged twenty. She was a girl of large frame, but emaciated and anæmic. She had been confined to bed for several weeks, and her medical attendant had been stricken down with fatal disease. Her history was as follows: At fifteen her menses appeared; until eighteen she menstruated regularly, and was very stout and active. At this date she

found the flow increasing, and her periods less frequent; at the end of a year she had periodical floodings. For two years she has passed almost half her time in bed, and is rarely free from some bleeding. On several occasions during the last year tampons were required to save her life. On examination the uterus is very much congested and heavy, the cervix is large and the os patulous; some blood is oozing from it.

The sound passes in 2¼ inches, and its introduction is followed by an increase in the flow. The feeling imparted through the sound is that of a rough, velvety surface. I passed into the patulous os a number of sponge tents; upon the removal of these I was able to pass the finger into the uterus, but from the uniform spongy feeling was led to believe that the uterus was lined with granulations, fungous, or, as I may say, polypoid in character. A large button of nitrate of silver was fused upon the end of a platinum probe, and while the mother held Sims' speculum, I cauterized the entire lining membrane of the uterus. When the slough separated the hemorrhage was so great as to require a tampon to arrest it. Next in order, during the winter of 1871–72, I tried styptics of every variety, and in March, 1872, hoped I was near the end of the trouble. The temporary relief was followed in May by a severe hemorrhage, which again put the patient to bed. I now again dilated the cervix, and explored the cavity of the uterus. Nothing new was elicited, but with Sims' curette I scraped out a number of small mucous polypi and rasped off the granular surface; to the now denuded surface I applied undiluted solution of the persulphate of iron. She recovered from this harsh treatment, and remained free from hemorrhages for a year. During this time her health improved very greatly, but she complained much of prolapsus, and was relieved with Hodge's pessary.

In November, 1874, I was called to see her again. She was in bed, and had just got over a prolonged and bloody menstruation. I again scraped out the uterus with the curette, this time finding several mucous polypi. On the third day afterward, she left her bed on the first floor, in stocking feet and night-gown, and went to the third story for some article she wanted. The day following she had a chill, followed by cellulitis and abscess.

In due time the latter burst, and she recovered by April, 1875. Having spent the summer in a country district, and taken a course of chalybeate waters, she married in January, 1876, thirteen months from the date of the second scraping with the curette. From the date of marriage until December 30th, 1876, she was regular in every particular, when the menstruation ceased. I am now engaged to attend her in her approaching confinement.

In July, 1873, I was called to see Mrs. M. She was nursing a babe about three or four months old. She was in bed, very pale and feeble. She said that blood had been "coming and going" from her womb for three weeks. A vaginal examination revealed no cause for it, and I introduced a sponge tent into the cervix. Ten or twelve hours afterward I removed the tent, and found in its meshes the remains of a mucous polypus. Believing this might be all, I waited. No further bleeding occurred.

Mrs. H., the mother of two children, called at my office, with her husband, in the summer of 1875, to consult me in regard to her health. Without doubt, her symptoms were those of pregnancy, and she admitted having felt motion, but said she was "unwell every three or four weeks." Her youngest child was fourteen years old. She had morning sickness; the areolæ about the nipples were dark; the breasts

were enlarged. She had frequent calls to empty the bladder, and leucorrhœa had annoyed her for six or eight weeks. Bimanual palpation with percussion demonstrated an enlarged uterus, with the neck soft and apparently shortened. A speculum was now introduced. The vaginal mucous membrane was red, its rugæ enlarged, and in the furrows a white opaque secretion, of creamy consistency, was apparent. But why did she bleed? Withdrawing the cylindrical speculum, I placed her upon her side, and inserted Sims' speculum, trusting her husband to hold it. I seized the anterior lip of the os with a small tenaculum, and, drawing down the cervix, observed a small pear-shaped polypus projecting from the os. It was now seized with a pair of fenestrated forceps, and its slender pedicle twisted off, when a second one was revealed and treated in the same way. These polypi were not glandular or mucous in character, but were abundantly supplied with cellular tissue and vessels. After this date she did not have any further bleeding, and, at full term, I attended her in her confinement. Her child was a male, and weighed ten pounds.

Miss W. came under my care in the winter of 1871–72. The pelvis was filled with a subperitoneal fibroid tumor. Her menstruations were profuse and painful. After considerable trouble and time, I succeeded in dislodging the growth from the cavity of the pelvis. In the April following, the uterus measured in depth five and a half inches. Repeated subcutaneous injections of Squibb's extract of ergot, and the maintaining of the organ as free from flexion as possible, by appropriate pledgets of glycerized cotton, which not only assisted in supporting the organ, but drained it constantly, resulted in complete control of the hemorrhage. The uterus, a month ago, was but two and three-fourths inches deep, and menstruation was normal, notwithstanding the fact that the fibroid still exists, though much reduced in size.

Mrs. W., from a neighboring State, consulted me in April, 1875, on account of severe uterine hemorrhage, occurring irregularly. She was fifty years of age, and very large. The uterus was seven inches deep, and attached to it was a very large subperitoneal fibroid tumor. She was ordered Squibb's fluid extract of ergot, and muriate of ammonium. A year later, she sent for me to see her in this city. She had been benefited by the former prescription, but still carried her large tumor. She declined to allow me to measure the uterus. A few weeks after, I was summoned to her in haste, but did not reach her for twelve hours, when I found her exhausted from loss of blood. A medical brother had tamponed her, and doubtless saved her life. I removed the tampon, cleaned out the vagina, and introduced a second tampon. Six or eight hours afterward, the bleeding began again. The tampon was removed, the uterus found to be five inches deep, and losing blood slowly but constantly. A stream of cold water and vinegar was played against the cervix for a few minutes, followed by pure water. Some slight abatement was apparent. I now determined to stop it promptly, and, taking a long urethral syringe, bent its nozzle over the gas to the proper curve, and filling it with a solution of persulphate of iron, carried it about four inches into the uterus and discharged its contents. Not another drop of blood appeared after its withdrawal. For several weeks she took salines and iron, with broths, milk and albuminous substances, and gained strength and flesh. Frequently, I have incidentally met her since, but, although a year has passed, she has not had another hemorrhage.

In two cases of menorrhagia, caused by subperitoneal fibroids, the vaginal portion of the cervix has been slit up, bilaterally, with great relief to the patient. Whether

nsion, and consequently irritation, is thus relieved, I leave the reader to judge. he fact remains that it is a remedy in these cases.

In December, 1875, a lady from a western State came to Pittsburg on account of severe metrorrhagia, which had been of long duration. The uterus could be felt nlarged. The cervical canal was narrow and long. A sound proved the uterus hree inches deep. The cervix was fully dilated with sponge tents, and a small ubmucous fibroid was enucleated. Her subsequent menstruations were normal.

Recently this patient writes me that her trouble is returning, and it is probable hat the cause is another small fibroid.

In March, 1877, Mrs. D. consulted me on account of an irregularity in her menses. She did not complain so much of the loss of a great quantity of blood, as on account of the tardy disappearance of the flow, and the fact that it returned after apparent cessation. She had been married several years, and had no children. The cervix was very long and hard, and the os small. I slit up the cervix bilaterally to the vaginal attachment, and cut off with scissors the divided sides of the cervix. To one of these pieces I found attached a mucous polypus, which probably accounted for the trouble. Since then she has menstruated naturally. The operation has left the os more open and made her more liable to pregnancy.

Gastro-Elytrotomy and Ablation of the Uterus.

M. Budin has contributed a criticism on this subject to *Le Progrès Médical*, September 22d, 1877, an abstract of which we take from the *Medical Press and Circular*:—

Cæsarean section is without doubt the most serious operation which the obstetrician has to perform, and though, in a certain number of cases, some patients placed under favorable conditions have recovered, yet, since the 26th of February, 1877, not one operation in Paris has been attended with success as far as regards the mother. The causes of death are numerous. To succeed in extracting the fœtus, the abdominal walls and the peritoneum have to be incised and the uterus divided. As this organ is considerably developed, and the blood vessels are larger, hemorrhage, during or after the operation, becomes a serious source of peril. Besides other dangers, familiar to every accoucheur, and presuming that recovery may take place, there are also other perils, as in subsequent pregnancy, or of the ovum escaping into the abdominal cavity, or, at labor at full time, of rupture of the old cicatrix resulting from the first operation, whilst Cæsarean section will again have to be resorted to.

Dr. Edouard Porro (Pavia) has proposed a radical measure, to prevent a recurrence of pregnancy.

After a Cæsarean operation, finding that the edges of the incision were weeping, he resolved to practice uterine ablation, which he did with the satisfactory result of the mother's recovery.

This method, so daring and serious, and against which many objections may be raised, has its advocates.

In 1876, M. Rein published a paper with the title "Extirpation of the Gravid Uterus as a Substitute for Cæsarean Section," the result of experiments on cats and rabbits. He claimed for this operation the following advantages:—

1. Only insignificant hemorrhage during the operation.

2. No important organ capable of lesion or of undergoing complete involution is kept in the abdominal cavity.

3. The impossibility of a fresh pregnancy.

Professor Spaeth has repeated Porro's operation on a patient, as serious hemorrhage had occurred after Cæsarean section. The woman made a rapid recovery.

In comparison with this operative procedure, we must place gastro-elytrotomy, which was once advised in Europe, and which has lately been practiced with success in America. Hemorrhage and the injury to the peritoneum have been the most serious sources of alarm, and some authors, as Ritgen (1821), and then Baudelocque, suggested the possibility of extracting the fœtus through the abdominal walls, avoiding section of the peritoneum and uterine tissues. Hence gastro-elytrotomy, which is thus described by Ritgen: A semilunar incision is made, starting from the anterior and superior spine of the ilium, and extending to the spine of the pubis, the muscles, aponeurosis, and cellular tissue are then divided down to the peritoneum, which, in place of being incised, is disengaged with the shaft of the bistoury, the vagina is penetrated, and extraction made through the wound. This operation was attempted by Ritgen, but after having commenced it, he was compelled to have recourse to the usual method to complete delivery.

Baudelocque compromised himself seriously in consequence of it, as whilst operating he pricked with a bistoury the external iliac artery, and this induced him to advise ligature of the iliac artery, in order to avoid such an accident. We need not, then, be astonished that this operation was condemned by almost all accoucheurs. It was definitely held in disrepute, and almost forgotten, until (1870) Professor Gaillard Thomas attempted, in an interesting paper read before the New York Medical Association, to revive it. He related that he had practiced gastro-elytrotomy at the seventh month, though the mother died from pneumonia, and the fœtus only lived an hour. Some time afterward Dr. Skene also performed the operation, but the mother and child were saved.

We may briefly enumerate the steps in the operation. One condition is absolutely necessary, complete dilatation, or dilatability of the neck of the uterus. If the woman is in labor, we must wait until the orifice is sufficiently dilated, to allow the fœtal head to clear it. If, on the contrary, she is not in labor, and it is necessary to deliver rapidly, the neck must be artificially dilated, either with the fingers or with Barnes' apparatus. When these conditions are attained, before commencing the operation, we must—

1. Provide the necessary instruments and assistants.
2. Arrange on a table everything requisite for the resuscitation of the child.
3. Place the woman on a bed, so that the surgeon may operate freely, as in the operation for Cæsarean section.
4. Empty the bladder and rectum.

The operation may be divided into four stages:—

First Stage.—The surgeon should make an incision of about fifteen to seventeen centimètres, as described, so that the head of the fœtus may be able to pass through, the peritoneum being left intact, the epigastric artery and other vessels being protected by hæmostatic forceps.

Second Stage.—The peritoneum must next be disengaged.

Third Stage.—A sound is introduced into the vagina to serve as a guide for lateral section of the canal. In place of a sound, it is easier and surer to introduce the index fingers into the vagina (Thevenot), and to make the incision between their extremities.

Fourth Stage.—Whilst an assistant presses the uterus on the side opposite to the operator, so as to bring the orifice to the top of the wound, the hand is introduced, version performed, and delivery effected. The dressings should be simple, and the lips of the abdominal wound brought carefully together.

M. Budin performed this operation on a woman who had died from hemorrhage, with the concurrence of MM. Thevenot, Darolles, Manoury, and Sinety, and they formed the following impressions:—

The length of the incision and the disengagement of the peritoneum seemed alarming, but when these stages were completed they were surprised how easily extraction took place. How very true are the French words, "Ce n'est que le premier pas qui coute," and we agree with M. Budin, that if the first stages of the operation were as easy as the last, we would unhesitatingly advocate the method of Ritgen. M. Budin concludes: Is gastro-elytrotomy superior to Cæsarean section? On this point we cannot positively affirm, for experience alone can solve the question. The success obtained by Dr. Skene may perhaps induce accoucheurs to reconsider the severe judgment they pronounced against it, especially at the present time, as we only have, as a counterpoise to the dangers of Cæsarean section, complete ablation of the uterus.

On the Treatment of Rupture of the Perineum.

Dr. Frank P. Foster, in his report on the Surgical Diseases of Women, in the *Archives of Clinical Surgery*, April 15th, 1877, quotes remarks of Dr. G. G. Bantock, in the *Obstetrical Journal of Great Britain and Ireland*, January, 1877. He says:—

Bantock excludes from consideration those superficial lacerations which involve only the skin or mucous membrane, *as far as* the perineal body. He argues in favor of immediate operation, opposing the attempt to secure union by merely keeping up apposition of the lower limbs, since this, although it keeps the lacerated surfaces in contact, at the same time closes the vaginal outlet, so that the lochial discharge finds its way out as best it can, *i. e.*, as much between the raw surfaces as *per viam naturalem*. In his own experience he has never known the immediate operation to fail, or the contrary method to succeed. Simple deep sutures should be applied, with as much care and skill as in the remote operation.

In the remote operation he discards the quilled suture, as causing projection and semi-strangulation of the perineum, and uses deep sutures of silkworm gut. First, however, if the laceration extends into the rectum, after completing the denudation, the rectal mucous membrane is brought together with fine sutures of Lister's catgut, which are left hanging out from the now restored anus. Like Thomas, he introduces the deep sutures in such manner that, after they are all inserted, but not tied, no part of them is visible in the wound. They, therefore, include the whole depth of the wound. The bleeding having ceased, and the wound having been cleansed of coagula, the nates are allowed to approach, and the knees brought together. The sutures are then collected and held tight, while the tissues are pressed down upon the septum, so as to secure perfect coaptation by pressure from outside, but *not between* the sutures. The latter are then held firm by an assistant, and successively tied, beginning with the one next the anus. With these precautions, inversion of the skin seldom renders superficial sutures necessary. Bilateral division of the sphincter ani and semilunar incisions through the skin are unnecessary.

II. DISEASES OF WOMEN.

A Case of Vaginismus Traced to Spasmodic Turgescence of the Clitoris.

Dr. JAMES R. CHADWICK reports an interesting case to the *American Practitioner*, July, 1877: —

February 25th, 1876. Mrs. E. R., twenty-nine years of age; has been married ten years; has had one child and two miscarriages, the last of these having occurred accidentally one year ago. The catamenia, which formerly lasted three days, have recently become scant, and last but one day.

The patient is very stout, being only four feet eleven inches in height, and weighing two hundred pounds. She runs a machine for the sewing of carpet and cloth slippers, which is propelled by steam power. Until steam was introduced she suffered constantly from "womb troubles."

She seeks relief from frequent micturition, and more especially from spasmodic pains that start at the vulva and run into the cavity of the pelvis. Of late these have commenced almost every evening between seven and twelve o'clock, and have persisted with scarcely any intermission until four in the morning. They have occasionally occurred during the day. They have sometimes been excited by coition, sometimes by micturition, and often start spontaneously. The suffering is very intense, entirely banishing sleep.

On examination the uterus was found to be in normal position, to be slightly elongated, to have a tender fundus and a congested cervix. There was no tenderness of the urethra or bladder. Tincture hyoscyami, thirty drops, was prescribed three times a day, to allay vesical irritability. Coition, which had been practiced every night for several months, was interdicted oftener than once a week.

March 20. Micturition less frequent, but the other symptoms unrelieved. A careful visual examination was made to discover any excoriation, hypertrophied papillæ, or even injected spot which might give rise to the symptoms by reflex action, since the patient complains of a sore spot. Nothing, however, was found until I touched the point of the clitoris, which, of course, I had at first designedly avoided. She immediately exclaimed at the tenderness, while my attention was drawn to the instantaneous contraction of the introitus vaginæ. Seeking to explain this latter phenomenon, I found it was due to the sudden turgescence of the bulbs of the clitoris, which, as is well known, lie along the lower margins of the ischio-pubic rami. Contrary to my expectation, there was no contraction of the sphincter vaginæ. The sensation to the patient was decidedly painful, and precisely the same as the first pains felt at each of the spasmodic attacks. She said at once, "That is the way my attacks begin." Subsequently the spasmodic pains were said to be felt throughout the vagina, running up into the abdomen.

Having recently had very satisfactory experience with the use of bromide of potash, to allay erotic sensations in cases of masturbation among women, I prescribed ten grains to be taken when the attack commenced, and the cold vaginal douche twice daily.

March 24. The patient reported having had a very severe attack, during which, in the course of five hours, she had taken seven doses of the bromide without relief. I ordered fifteen grains to be taken three times a day regularly.

July 14. The patient returns to report entire relief from the distressing pains

aving ensued after two days, during which the bromide of potash had been taken s ordered. They have not since recurred. The frequent micturition, of which omplaint is again made, seems to be due to the pressure of the congested uterus pon the bladder. A touch upon the tip of the clitoris still induces turgescence of he bulbs, but is no longer accompanied with pain.

I report this case, because I can find no other on record in which such spasmodic ains have been traced to the clitoris as their starting-point. The tenderness of the pex of the clitoris was not so great, nor the momentary spasm so severe, as to indiate so distinct a reflex character as is usually found in vaginismus.

In ordinary vaginismus the spasmodic contraction of the muscular walls of the agina follows immediately upon the local irritation produced by the finger, specuum, male organ, etc., and persists only a short time after the source of the irritation s removed. In my patient, the peripheral origin of the spasms seemed less manifest. The attacks came on with darting pains clearly connected with spasmodic erections of the clitoris; these gradually increased in intensity until the whole vaginal tract, and, for all I know, the uterus and Fallopian tubes, participated in the spasmodic action. They were sometimes excited by local irritation (micturition or coition), and often occurred idiopathically. They always persisted for hours.

Notwithstanding the prominence I have given to the above divergencies from the ordinary type of vaginismus, I still assume that the excessive venery to which my patient had been addicted for several months was the origin of the neurosis as well as the uterine congestion.

The relief was distinctly attributable to the bromide of potash in the continued doses. She was no better for several weeks during which sexual intercourse had been reduced to reasonable limits, and the medicine was taken only at the commencement of and during the attacks. This result tallies perfectly with my experience of this drug for the purpose of diminishing or even completely banishing erotic sensations, while the habit of self-abuse in women is broken up.

It will be remarked that I have assumed the spasmodic contractions of the vaginal walls, never having seen the patient during an attack. I believe this to be justified by the data on which the diagnosis has been based, although I consider the disease to have its seat in the nerves. This assumption only establishes an analogy between this case and cases of facial neuralgia accompanied with twitching of one or another of the facial muscles that is under the influence of the nerve affected. This view brings the disease into the class of vaginal neuralgias imperfectly described by Vidal de Cassis, Simpson and others. I have preferred, however, to retain the title vaginismus, for the purpose of associating the case with the most common manifestations of the disease.

Finally, it must always be borne in mind that painful coition is not, in most instances, vaginismus; hence, the term dyspareunia, recently proposed by Dr. Barnes, must obtain a footing in our nosology, unless a better one be proposed.

Hydrastis Canadensis in Uterine Hemorrhage and Menorrhagia, and also in Dysmenorrhœa.

Dr. W. A. Gordon, of Hannibal, Mo., says that during the past ten years he has made extensive use of freshly-prepared tincture of hydrastis from the fresh root, and has resorted to it rather than to ergot in cases of hemorrhage, etc. The dose he employs is from twenty to thirty drops, repeated until the active hemorrhage is con-

trolled. The remedy is then continued in small doses, two to five drops every two or four hours. Of other uses he says:—

In *Menorrhagia* I have found it to give decided and prompt relief. In this class of cases I am in the habit of giving from two to five drops of the above tincture of hydrastis in a teaspoonful of water every two or three hours, or oftener, and in larger doses if the urgency of the symptoms demands it. After the flow is brought to its normal quantity, the minimum dose is continued twice a day until the next period of menstruation, when, if the excessive discharge recurs, I resort again to to larger and more frequent doses, until it is brought under control.

In *Dysmenorrhœa* caused by chronic endometritis, the tincture of hydrastis, with bromine, has given me very satisfactory results.

In the use of bromine as an internal therapeutical agent, I have observed that persons of a nervous temperament are highly susceptible to its influence. I would here incidentally remark that, during our late war, I had occasion to use it quite extensively in the military hospitals of the Department of Kentucky, under the direction of Dr. M. Goldsmith, late surgeon U. S. V., and my observations there were such that in the majority of cases treated with bromine (which were hospital gangrene and erysipelas) the doses recommended and administered internally were not attended with as good results as much smaller doses, frequently repeated. See United States Dispensatory for preparation and dose.

In some cases, classified under the head *neuroses*, and especially those arising from diseased conditions of the procreative system, I have known one-twentieth the dose directed by the United States Dispensatory produce violent headache, ranging from the frontal sinus, along the track of the longitudinal sinus, down to the base of the brain, with a marked increase of pulse in volume and frequency. In one instance the pulse was increased fifteen beats per minute, which lasted about two hours before it began to decrease, and did not resume its normal beat until the expiration of seven hours from the time the dose was administered. This case was a nervous female, afflicted with endometritis.

In these nervous susceptible cases I have met with some that could not tolerate over ten drops of the following solution, four times a day, without stimulation and headache:—

℞. Bromini, gtt.j
Aq. dest., Oj. M.

If a much larger dose than the above is continued for several weeks it will almost positively produce *membranous dysmenorrhœa.*

The formula I am now using in several cases of endometritis is to take equal parts of the above aqueous solution of bromine and tincture hydrastis, and give fifteen to twenty drops of the mixture three times a day, and if patient is restless at night give a dose at bedtime.

My reasons for being somewhat explicit on the internal administration of bromine is from the fact that its potency has so limited its use that comparatively few members of the profession have ever given it a fair trial.

But if given in small doses, such as suggested above, or even smaller, I am satisfied that it is a remedy of more than ordinary merit as an alterative and stimulant to the procreative system, and at no distant day will be found to possess great value as a remedy for increasing cell action in the nerve centres controlling the sexual system of man.

Phytolacca Decandra in the Treatment of Mastitis.

Dr. A. A. MOORE, of Camden, S. C., gives, in the *Virginia Medical Monthly*, May, 1877, his experience of this drug in mastitis. He says:—

In this section of country, as a general rule, only negroes are to be obtained as wet nurses. I dislike to employ them in this capacity for fear that they may be reeking with the fumes of some loathsome disease. Having also an innate and unconquerable aversion to all sorts of artificial feeding of infants, when there is any possibility of avoiding it, I hail with delight any remedy which promises relief from that painful trouble, mastitis.

In the January, 1873, number of the *American Journal of Medical Sciences*, Dr. G. W. Biggers, of La Grand, Oregon, reports a few cases of threatened mammary abscess which he treated successfully with the fluid extract of poke-root. Recently, I have had occasion to avail myself of the information he has thus afforded. Notwithstanding the process of hardening the nipples had been resorted to preparatory to nursing, about ten days after confinement the lady's nipples became excoriated and fissured. For this, compound tincture of benzoin, nitrate of silver, etc., was tried in vain. A few days later, a hard lump was discovered beneath the left nipple, accompanied with throbbing and shooting pains through the gland and down the left arm, and with oozing of pus through the nipple. Heeding this premonition of further trouble, and hesitating to resort to the antigalactagogue properties of belladonna, I immediately began the administration of fluid extract of phytolacca decandra. I gave twenty drops every three hours in a wineglassful of water, until the lady had taken altogether nine doses, or about three fluid drachms. By this time all symptoms of inflammation and abscess had entirely disappeared, and the only remaining source of discomfort was the sore nipples. By the aid of a large nipple shield fitted over a glass base, this trouble has also been overcome.

It is proper to mention, however, that before the patient had taken the last two doses, she began to experience some of the neurotic effects of the drug, such as vertigo, dimness of vision, some nausea, etc. These symptoms, I think, admonish us either to entirely suspend its use, or to administer it at longer intervals.

I will also remark, that the phytolacca did not seem to have any deleterious action on the lacteal secretion, as the infant continued to nurse regularly, and without any ill effects whatever.

Cases of Infiltration of Labia.

Dr. J. W. MCCRACKEN reports to the Toledo *Medical and Surgical Journal*, July, 1877, two cases of labial infiltration, in which he says:—

Several years ago I was called to see a lady, Mrs. B., aged about forty years; scrofulous, asthmatic and almost constantly suffering from bilious torpor. She was in the ninth month of gestation, and near its close. She was lying on her back, with her limbs strongly flexed and abducted, apparently in severe pain. She told me that she had lain in that position for several hours, being unable to move or be moved. She said there was something wrong "down in front." I at once proceeded to make an examination, when the following conditions were revealed:—The labia majora were infiltrated and rolled outward, being distended to the utmost possible limit the tissues were able to bear. The mucous surface glistened like an inflated bladder. The labia formed elliptical rolls about two inches in diameter, their length limited only by the extent of the labia—five or six inches—very hard, and pitting

slightly on pressure; the labia minora were swollen in the same manner; there was no effusion into any structure or cavity; urine normal in quantity; no tests as to character; the pain was severe, and the patient declared that the membrane would "burst" if I could not give relief. Labor was imminent, and its occurrence, under the circumstances, could but result in disaster. After carefully looking the case over, I decided on puncturing the mucous surface. My reasons for this conclusion were two: first, to try and avert the immediate danger, by giving direct outlet to the fluid; second, to establish a drain that might aid in unloading the tissues, for at least twenty-four hours, until a change could be wrought in the condition of blood and vessels. A thin bistoury was used freely over the mucous surface. Serum was discharged very freely, and in a few hours the knees could be brought together. The fluid discharged from the incisions was sufficient to saturate the bed and run through on the floor.

Recovery was prompt and satisfactory, and in three or four days labor came on all right and natural. She gave birth to a healthy-looking child. No recurrence in subsequent pregnancies, or at any time.

CASE 2.—Was called about August 1st, 1876, to see a young married lady, Mrs. W., aged about twenty years; tall and well developed. Evident bilious derangement with constipation, and deficient elimination of urine. Spinal irritation was also well marked. Treatment was adopted, and by the close of the month her health was pretty well restored. Had always worked hard; had not menstruated since March 1st; did not think herself pregnant.

September 20th, my attention was again called to her condition, and after due consultation with interested parties, I was directed to make an examination to determine facts. On digital examination, I found the os patulous and enlarged, very soft and puffy; womb enlarged, with evident pregnancy. The speculum revealed ulceration of the os and cervical canal. I made known to her my convictions, and the trouble which would probably grow out of the existing complications.

November 14th, I was called again, to find her with bloated limbs, body and face, headache, and almost no elimination of urine; great danger of convulsions from uræmic poisoning. Drew sixteen ounces of blood; directed avoidance of work, and tried to impress the importance of rest in the recumbent position. Prescribed diuretics and tonics, with stimulating baths and active friction. By the close of November the swelling was gone, and she was comfortable.

December 14th, one month after the approach of serous effusion, I was called to see my patient, and found her lying on her back with the limbs strongly flexed and abducted, and unable to move. Had not passed over four ounces of urine in the previous twenty-four hours. On examination, I found a repetition of my first case of infiltration of the labia, the distention being extreme, and dropsical effusion general, with some headache. I at once proceeded to make free yet minute incisions over the entire mucous surface of the distended labia, as in the first case, followed by a free discharge of fluid, and in twelve hours entire relief of the trouble. Saline cathartics, diuretics, tonics, friction, etc., were directed. Digitalis alone supplied my want as a diuretic.

The following complications and sequelæ are worthy of note in this case:—

Threatenings of labor followed, soon passing away.

On the night of the 17th, four days from the attack above described, I was called in haste, to find my patient just emerged from a severe convulsion, she having had three or four very severe ones; her face was highly œdematous and livid, almost

purple. She was restless, with great anxiety manifest in her appearance; also disturbed mental condition.

After a hasty consultation with my partner, Dr. Wright, I proceeded to open a vein, and drew thirty-two ounces of blood from a large orifice. Pulse 150 when vein was opened, fell to 80 at the close. The patient calm, and had no return of the convulsions. Elimination of urine free, and an entire subsidence of the effusion into cellular tissues.

Early in January she gave birth to a still-born child.

I have presented these cases for the consideration of the Society because of their interesting and, to me, anomalous character.

In the latter case, I am convinced that the defective action of the kidneys was largely caused by pressure from the gravid womb upon the renal arteries and veins, and that the consequent retention of uric acid and urea in the blood caused in a great measure the convulsions, and that nothing but free venesection saved the life of my patient.

Neuralgic Dysmenorrhœa.

Dr. R. S. HAGGERTY read before the St. Joseph Valley District Medical Society a paper on this subject, and which appeared in the August number of the Detroit *Medical Journal*:—

Menstruation is variously described as an exudation, oozing, or extravasation of blood from the mucous membrane of the uterus, or from the ovaries, tubal and uterine mucous membranes, which are thus relieved from an intensely congested condition, caused by a maturing ovum. The turgid or erected condition of the parts causes the fimbriated extremity of the tube to clasp the ovary and press the ovum through its proper channel. Recent investigations have thrown doubt on the presumed dependence of the menstrual flux on ovulation, and have rendered it highly probable that the flow is "the terminal change only of a cycle of changes which begin at the cessation of one menstrual flow, passing through the developmental changes of the mucous membrane of the uterus, and ending with the cessation of the flow next following." That it is not a congestion, nor a species of erection, "but a molecular disintegration of the mucous membrane of the body of the uterus, followed by hemorrhage," being at such period either a desquamation of the entire mucous membrane, or a destruction by fatty degeneration of the surface layer of the membrane, ovulation, if present, being incidental, and not the cause of it. Another cause of hemorrhage is muscular contraction of the uterus, which exists in normal menstruation almost certainly, and without question in dysmenorrhœa.

While the connection of ovulation with menstruation is a subject of interest and importance, we will not discuss it here, as the form of dysmenorrhœa we shall consider does not demand it.

Normal menstruation is manifested frequently by the discharge alone, although uneasiness, heaviness about the loins, and slight pains in the back and pelvis are not considered pathological, because many healthy women have such symptoms from the muscular contractions necessary to expel the blood and detritus. But where pain exists of such a character as to call for relief, it is styled dysmenorrhœa, the term referring to the pain and not to the cause of it.

Prior to 1826 it was commonly reckoned to be the local expression of a constitutional difficulty. In that year Mackintosh treated a case of amenorrhœa by dilating the neck, and afterward fifteen cases of dysmenorrhœa successfully in the same way,

using "common metallic bougies from the size of an ordinary probe to No. 8 or 10." There were cases of stenosis, the dysmenorrhœa being mechanical. Since that time there has been a tendency to attribute the disease to local causes, until now but few cases are assigned to general causes, and they are of doubtful acceptance, some vice of the blood or of the nerves being the scapegoat called upon to bear off the sins producing it. The local causes are cancerous, fibroid, or other tumors narrowing the channel through which the flow passes; versions or flexions of the uterus which change the axis of the outlet; stenosis from previous inflammation, or existing inflammation of the cavity of the uterus, either general or circumscribed.

Not caring to occupy time in discussing the different forms of dysmenorrhœa where agreement is had with the text books, my remarks will be limited to what is commonly called neuralgic dysmenorrhœa, generally supposed to be a constitutional disease, manifested by an excruciating pain at the menstrual flow. A young woman with this disease bears no marks of its character in the intervals of suffering, being usually healthy and vigorous, enjoying life without ache or ailment. This continues for years, until the monthly repeated agony finally induces an irritable condition of the nervous system which results in general prostration. West describes the paroxysm thus: "The pain in such cases precedes menstruation for a day or two, generally reaches its greatest intensity in the first twenty-four or thirty-six hours of the catamenial flow, being so intense that the patient rolls on the floor in agony, and then by degrees subsides, though it does not cease entirely till the period is over." Simpson says: "Pains which have existed in other organs and parts of the body disappear only to be concentrated in the womb."

The pathological condition is probably an irritable ulcer of the mucous membrane of the uterus just within the internal os, which causes pain only when a contraction of the muscular tissue takes place for the expulsion of the menstrual discharge. So long as this contraction lasts the pain will continue, and be proportioned to the amount of contraction and to the extent of the ulcer. The origin of the lesion may be exposure to cold, getting the feet wet, or any of the numerous causes of so-called congestive dysmenorrhœa, which mechanically impede the flow and cause clots to form in the cavity of the uterus, which can only be expelled by strong muscular efforts, and which tear or otherwise injure the delicate mucous membrane at or near the internal os; this, not healing before the next monthly period, is again subjected to muscular contractions, causing the anguish characteristic of the disease.

Without searching for an analogue to this affection, I have been so constantly reminded of anal fissure as to be convinced that it is very much like it.

Pain is almost the only symptom announcing the presence of both. The peculiar agonizing character of the pain is alike. The lesion is but trifling in both; the dysmenorrhœa frequently sought for in vain; in anal fissure only found after diligent search.

Neither disease tends to get well spontaneously; "neither time, nor change of air, nor general treatment, however skillfully applied, seem capable of curing" either of them. "Patients become confirmed invalids" from each of them, and some of the nervous sensitive character. And to complete the analogy the cure is effected in a manner almost identical. The cure of anal fissure is effected by cutting through the ulcerated surface into the submucous membrane, or by rupturing the sphincter muscle, and the treatment of neuralgic dysmenorrhœa must be similar.

Thomas gives a list of numerous remedies used as constitutional treatment, but evidently has little faith in their efficacy, and concludes by saying: "The occa-

sional passage to the fundus of the uterus of a uterine sound or silver catheter, the situation in the uterus of the galvanic pessary, and the use of tents of sponge or sea tangle will often prove serviceable." Byford says: "I am sure that although I have tried such remedies as were suggested to me by reading and observation in neuralgic diseases, yet I have invariably failed with every kind of treatment besides that of local applications to the diseased mucous membranes." Although I have, in every division of the subject, enumerated neuralgia as a variety of dysmenorrhœa out of veneration for authority, I believe that the nervous is the unimportant element instead of the essential one.

The cure of anal fissure being so certainly accomplished by the means suggested induced me to pursue a like treatment in the disease under consideration, which is superficial incision of the internal os, such as is practiced by Peaslee and others for contraction of the neck. Placing the woman in Sims' position, introducing the speculum, the neck of the uterus is seized with a tenaculum, and a uterotome or tenotomy knife is introduced along the cervical canal within the cavity of the uterus; a nick is then made on one side, about one-eighth of an inch in depth, the instrument is withdrawn, and introduced again so as to make a like incision on the opposite side. If there is stenosis of the canal of the cervix, the cut, of about the same depth as at the internal os, is continued throughout. If there is no narrowing of the cervical canal, the incision is confined to the internal os. A sponge tent is now introduced, or what is better, a steel spring. If the tent is used, it should be removed in six or eight hours; if the spring, it may remain for from one to four or more days. If the case is one of simple ulceration or fissure, the cure will be completed without medication. If stenosis exists, or want of parallelism between the axis of the body and neck, the dilatation will have to be removed. While the sponge tent may be innocuous, it is a fruitful cause of cellulitis, and should never be used where force is required to introduce it. Cellulitis may also follow a deep incision, but is not likely to result from the superficial one advised.

Phlegmasia Alba Dolens.

J. D. CLINE, B.A., M.D. House Surgeon, Montreal General Hospital, read before the Medico-Chirurgical Society of Montreal a paper upon this subject, which appeared in the September number of the *Canada Medical and Surgical Journal*:—

I have several times seen phlegmasia dolens occur in typhoid fever, not always as a sequela, but sometimes as a complication of the acute stage of the disease. The following are brief notes of a recent case:—

F. G., aged thirty, a stout, strongly-built sailor, was ill in the Montreal General Hospital with typhoid fever. On November 14th, 1876, the twenty-eighth day of the fever, I find the following note: "Patient took a sharp pain in the calf of his left leg yesterday. To-day the pain and tenderness extend up the thigh along the course of the femoral vessels. Ordered a hot fomentation to the thigh, and pulv. Dover gr. x at night."

November 15th. Left leg a little swelled to-day. The large veins in Scarpa's triangle can be felt hard and knotty, and are tender. Pressure here and there on the calf causes a good deal of pain. The superficial veins in the calf are enlarged. Temperature ranges from 98° in the morning to 100° in the evening. I may mention that he had not had a normal evening temperature yet, and this affection of the veins did not appear to alter the course which the fever was running.

19th. Swelling of the leg going down, and tenderness disappearing.

25th. Ordered a bandage to the leg, the fomentation being stopped. About this time the patient had retention of urine from a stricture, which he had not told us of before, and he remained in the hospital until June 11th of this year, when he was discharged. The left leg still swells when the patient walks. The swelling is unaccompanied by pain.

This had been a mild case of fever.

Another case in which I saw the occurrence of thrombosis of the femoral vein, the right one, I think, in the second week of the fever, was also mild.

In the hospital at Basle 31 cases of thrombi in the veins of the lower extremity occurred among 1743 typhoid fever patients, the majority being men. According to Liebermeister, it has little prognostic significance, usually terminating in recovery. Only 2 cases out of 31 proved fatal.

The next two cases of which I have a note occurred in the advanced stage of cachexia, one tuberculous and the other cancerous.

J. F., aged thirty-five, was admitted into the hospital on December 1st, 1876, in an advanced stage of phthisis, having signs of extensive softening of both lungs. He died on January 14th. About two weeks before his death, he one day complained of a severe pain in the calf of the left leg. On examining it I found the calf swollen and tender, and a very tender line over the popliteal vein. On the following day the foot was swollen and œdematous and the calf was more tender, with enlargement of the superficial veins. At the autopsy I examined the popliteal region, and found a hard, thickened cord in the middle of the space, which was indurated cellular tissue around the vein, involving in it the artery. I removed a piece of this indurated cord, showing the popliteal vein, and a large branch opening into it, both filled with a dense fibrinous plug, and the artery firmly connected with the vein by the dense inflammatory tissue. The fibrinous plug was not adherent to the wall of the veins.

P. H., aged twenty-eight, was admitted into hospital on October 18th, 1876, with a large abdominal tumor, irregular in shape and hard, which was diagnosed as cancerous. He was in a very advanced cachectic condition. He left the hospital on November 3d, and died about a week after. While he was in hospital he had thrombosis of the right and left femoral, consecutively, with the usual symptoms, pain, tenderness, hardness, etc. The feet and legs below the knee had been œdematous before. There was no autopsy.

In these three cases which I have reported we have the blood crasis of which Trousseau speaks, with the mechanical retardation of the venous current in the lowered vitality and feeble hearts. We have the same conditions, with, perhaps, a less degree of blood dyscrasia, in the following case:—

M. N., aged fifty, was admitted into hospital on February 7th, suffering from obstruction of the bowels from fecal impaction. She was an energetic woman, and had, up to the time of her illness, followed her occupation of nursing, but was pale and had a weak heart, with a rapid, feeble pulse. The abdominal symptoms were very severe for several days, and left her greatly prostrated. After all the abdominal symptoms had disappeared she one day complained of pain in the calves of both legs. On examination both feet were found to be œdematous, the calves tender, and the course of the popliteal veins tender. The tenderness in the right leg afterward extended upward along the greater part of the femoral vein. There was an elevation of temperature coincident with this affection of the veins. In the course of a week the tenderness disappeared, and the œdema of the feet and legs was becoming

less, when an acute inflammation of the kidneys set in, accompanied by œdema of both legs, without any tenderness. The patient died on May 19th. There was no autopsy.

The occurrence of the thrombosis, that is, the coagulation of the blood in the veins, in such cases as those which I have reported is easily explained by the stasis of the blood, which is already prone to coagulation, from its condition of hyperinosis. I am inclined to look upon the mechanical retardation of the blood current, from whatever cause, as a very important factor in the causation of the coagulation. The following is a case in which there was the blood stasis without any apparent indication of a blood crasis which would give the blood a tendency to spontaneous coagulation:—

C. L., aged thirty-eight, was admitted into hospital on October 7th, 1876, with a large ovarian tumor. She was a large woman naturally, but her girth at the umbilicus on her admission was forty-three inches. The superficial abdominal veins were enlarged, and her legs were œdematous.

October 22d. The ovarian tumor was tapped with an aspirator, and very much reduced in size. The fluid rapidly reaccumulated, till, at the end of October, her girth was forty inches.

November 2d. She complained of a severe pain in the calf of the right leg, which was found to be swollen, tense, and tender, with a hard tender cord in the course of the femoral vein, and enlargement of the superficial veins. The thrombosis was accompanied by an elevation of temperature, which, up to this time, had been normal. The temperature was 101° on the night of November 2d, and was not again normal till the 7th, on one occasion being as high as 102°. On November 20th she had a similar affection of the left leg. On the night of the 20th the temperature was 101°, and remained high for three days. It had been normal up to this time since the thrombosis of the right femoral vein. After the death of this patient, which occurred on March 15th, 1877, I examined both femoral veins, and found the right one pervious throughout, but the left one, for about two inches before it passed under Poupart's ligament, was divided into two channels by a thin fibrinous partition, both sides of which were perfectly smooth.

This patient was a great unwieldy woman, from her natural corpulence and the presence of an abdominal tumor weighing thirty pounds. She could, with difficulty, change her position in bed, and complained of pain in the buttocks, from lying on them. I should think in this case the coagulation began in the gluteal and other veins of the nates, and from them extended to the femorals, the coagulation being excited by the great pressure on the venous current from the weight of the tumor.

You will observe that in some of these cases I have drawn attention to the elevation of temperature coincident with the affections of the veins. There was an inflammatory fever, evidently a symptom of the phlebitis, which always occurs, to a greater or less extent, as a consequence of the thrombosis. The existence of a phlebitis is also evidence in any case, from the excessive tenderness along the veins and the thickening along their walls, and the results of it can be seen in the specimen which I have shown you from the popliteal vein.

This suggests the question of the relation of phlebitis to the affection of which I am speaking. Does phlegmasia alba dolens ever originate in a phlebitis? This question has special reference to the phlegmasia of puerperal cases, which is regarded by some as different from the venous thrombosis of such cases as I have reported, and one of the synonyms of which is crural phlebitis. Of the fact that veins are subject

to inflammation there is now no doubt; also, that the inflammation is attended with coagulation of the blood in the inflamed part. According to Quincke, in Ziemssen's Cyclopedia, "Very early in the disease (phlebitis) a blood coagulum may form on the diseased part of the venous wall, as soon, namely, as the endothelium of the intima has become altered in the slightest degree from its normal; coagulation occurs, therefore, more readily in the destructive than in the sclerosing form of inflammation."

The following case is, I think, an example of this:—

J. C., aged thirty, died at the Montreal General Hospital on April 18th, 1876, of pyæmia, consequent on acute necrosis of the right femur. At the autopsy was found a thrombus in the internal saphenous vein. I quote the description from the autopsy report: "The long internal saphenous vein of the left leg is plugged about the middle with a thrombus. It could be felt internally as a firm cord. On removal and slitting it up, the upper part was free, though much contracted. At a point corresponding to the middle of the thigh the vessel presents an oval swelling. Internally it is seen to be a decolorized soft mass, occupying the calibre of the vessel. It is soft and closely adherent to the intima." In the same case were found numerous spots of suppuration in the muscles, and spots of pneumonia in the lungs. Now, this localized thrombus appears to me to have been the result of a localized pyæmic inflammation of the walls of the saphenous vein. This was the only place where any phlebitis occurred.

Another fact that is recognized by all pathologists, is the extreme rarity of primary phlebitis, that is, the very slight tendency of the veins to inflame.

Now, I would wish to argue that the phlegmasia alba dolens of puerperal cases is essentially the same as that of such cases as I have reported, that is, is primarily thrombosis of the veins, and that the difference which some cases of milk leg present is due to a difference in the degree and extent of the inflammation of the veins which follow the thrombosis. Many milk legs, or perhaps better, puerperal cases of thrombosis, are met with which do not differ at all in essential characters from cases of simple femoral thrombosis. The following case is such a one:—

D. C., aged twenty-three, was admitted into the hospital on May 21st, 1877, suffering from cystitis. The patient had left the hospital a week before, having been admitted that time also for the same affection. While in the hospital the first time she was delivered of a seven and a half month's child. On her admission the last time she complained of great bearing-down pains, especially on micturition. On June 2d, that is thirty-seven days after the birth of her child, her temperature rose to 101°, and she complained of a pain in the left groin. By a vaginal examination I found no swelling, but tenderness in the left pelvic region. She continued to complain of this pain, till on the 6th of June her complaints became more urgent, the temperature rose to 102⅘°, and she complained of pain in the calf of the leg. The leg was examined, and no swelling of the leg or foot was found, but a fullness of the thigh, with enlargement of the superficial veins here, and a hard, knotty and tender cord, in the course of the femoral vessels. There was no tenderness in the calf at this time. On the next day the calf was tender and swollen, but not the foot, and the patient complained of numbness of the limb, and on the 9th of June the popliteal vein could be felt hard and tender. It is a strange circumstance that the bladder trouble entirely subsided since this affection of the veins.

June 13th. To-day the tenderness is much less in the calf, and over the popliteal veins, which can, however, still be felt as hard cords. The swelling of the calf and

thigh is much less, and the temperature is normal. I examined the vagina again to-day, and find some hard cords on the left side of the pelvis. The numbness of the limb has disappeared. June 18th, the patient has been ordered her clothes, but is very lame on the left leg. The swelling of the calf and thigh and the tenderness along the vessels have disappeared.

I think the phlebitis in phlegmasia alba dolens is secondary to thrombosis in the uterine veins, extending from them through the hypogastric to the common or external iliac.

Fibrous Tumor of the Uterus Expelled Piecemeal by Ergot.

Dr. WILLIAM H. BYFORD, of Chicago, sends the following interesting case to the May 15th number of *Archives of Clinical Surgery*:—

Mrs. L. D. M., forty-seven years of age, called on me September 20th, 1876, with the following history: She had been the subject of severe hemorrhage, leucorrhœa, pains in the region of the uterus, and general nervous prostration for the past two or three years.

I found upon examination a large fibrous tumor of the uterus, which extended to within two inches of the umbilicus, filling up the hypogastric region, and extending to the ilium on the left side. The uterine cavity admitted the sound fully five inches. The contour of the tumor was globose and regular, and admitted of considerable motion. Her great apprehension made the patient urgently demand some energetic measure to get rid of the tumor. I thought it another very favorable case upon which to try the expulsive influence of ergot, and prescribed Squibb's fluid extract.

She began at once to take thirty drops of that preparation, three times a day, and was to gradually increase the dose to one drachm. At first it had no perceptible effect. In a few days, however, she experienced great pains, and soon the suffering from them made it necessary to omit the medicine for several days at a time. In spite of this disagreeable effect, she was urged to resume it in the smaller doses, and again increase it until it became intolerable. She courageously continued the medicine in this way until the 13th of January, 1877, when the tumor began to break up and be discharged.

I will here give a copy of the letter in which this plucky woman describes the process by which she was freed from the tumor. She says:—

"I think I wrote you one week ago to-day (January 20th). At that time the tumor was passing. It continued to do so until Friday (the 26th of January), when I think the last of it was expelled. To-day I have expressed to you a portion of the last that came. I think the whole that came, with the portion I sent you, would weigh one and a half pounds. I do not believe a two-quart can would hold it all if the whole of it had been preserved. It commenced to come a week ago last Saturday (January 13th), and from Saturday evening to Sunday morning there was a pint or more. After this the stench was so disagreeable that we could not cleanse it; consequently, we threw it away. Wednesday and Thursday it seemed to be in one continuous mass. I can't better describe it than to say that it came like sausage meat from a stuffer. I would cut off about four inches a day, that is on Wednesday and Thursday. Friday morning (the 26th of January) the last portion of it came away. There is now considerable discharge and a good deal of pain, and my appetite is poor.

"During my sufferings I could not take the medicine you prescribed; the valerian

makes me so sick. Yesterday morning I had another attack. It took me all at once. It appeared to be in the womb at first, and from there it extended to the bowels, as though a knife were cutting me. During the night, if I would cough or move in my sleep, I could not help screaming, there would be such lancinating pains. I am so tender this morning I can't bear anything to touch me.

"I am afraid of this bowel difficulty. I know it is gas, but do not know how to get rid of it. I attempted to use injections of castile soap and tepid water, to cleanse, but it caused pain. The os or neck of the womb is very sensitive. Saturday morning my bowels [the abdominal muscles] were drawn down tight to my backbone, but Sunday and to-day I am bloated, owing to this gas. There are times I have a little fever, then again I sweat excessively."

In the few last sentences of this letter we see allusion to symptoms that must have arisen from septicæmia, the result, no doubt, of absorption of some of the putrid fluids flowing from the decomposed tumor while occupying the uterus and vagina.

The above description, although not elegant, is very graphic, and the more interesting because it comes from the suffering patient.

In a letter dated March 29th, 1877, she says:—

"You remember when I last wrote I was menstruating freely, and had been for a week. I took the ergot as you directed, and it checked up. In five weeks my courses returned, lasting only two days. During the interval, there has been some discharge of a white, glairy mucus. I have gained flesh, appetite is excellent, and my friends think I am doing splendidly."

The frequency with which the persistent use of ergot is followed by the disintegration and expulsion of fibrous tumors of the uterus, is an interesting if not a new item in the treatment of these morbid growths. In a certain class of these tumors, we may reasonably expect this event. This is the fourth case that has come under my observation within the last three years in which a fibrous tumor has been thus summarily disposed of.

In the intramural tumor, where the neoplasm is situated so that the greater portion of the muscular fibres surrounding it lies outside, the persistent use of ergot, if it causes contraction, will be very likely to effect its expulsion. I think the process may be explained in this way, viz.: When all the fibres of the uterus are acting with equal energy, the thicker and stronger external stratum will overcome the thinner and weaker internal layer of fibres, and press the tumor toward the uterine cavity. The frequent and continued repetition of this antagonism must soon impair the nutrition of the overpowered and yielding fibres, and finally destroy their integrity, causing either absorption or destructive inflammation in them, either of which will sooner or later permit of their rupture. After this much is accomplished, the expulsion of the mass will necessarily follow.

I would further call attention to the fact, that the concentric action of the whole fibrous structure of the uterus is the most efficient, if not the only factor in the process of disintegration and expulsion of the tumor.

A question of some importance, is the possible disastrous effects of ergot in cases where the tumor is situated nearer the peritoneum than to the mucous membrane. If the thicker and stronger stratum of fibres is between the uterine cavity and the tumor, why may not the tumor be disintegrated, and, after rupture of the peritoneal layer of fibres, be impelled into the peritoneal cavity, and cause death from septic inflammation of that cavity? The answer is, that after the tumor is extruded to a certain extent, the inner fibres, by virtue of the concentric direction of their con-

ractions, exert their force from, instead of toward, the tumor. In this way the nutrition of the tumor is diminished, its growth checked, and a tendency given to the more gradual degeneration, which results in induration, and, perhaps, calcareous degeneration.

I see no reason to doubt that, with a proper consideration of each case as it presents itself for examination and treatment, we shall generally be able in the near future to select with considerably accuracy those in which the success of the treatment instituted to cause the destruction and discharge of these tumors can be predicted with a reasonable degree of assurance.

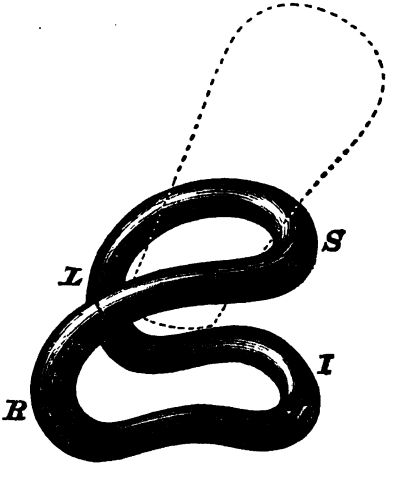
Illustrations of New Pessaries.

Dr. EUGENE C. GEHRUNG, of St. Louis, writes upon this subject to the Nashville *Journal of Medicine and Surgery*, July, 1877 :—

Under the heading of "A New Anteversion Pessary," I read a paper before the Territorial (now State) Medical Society of Colorado, about four years ago, which was published in that Society's *Transactions* for the year 1873, simply describing the instrument, expecting that everybody would see its properties at a glance, as I had become aware of them through several years' trial. But I was disappointed in my expectation, as but very few took cognizance of it. Since my removal to St. Louis, I have shown it and demonstrated its qualities to a number of eminent gynecologists, both of this city and New York, and, as I have cause to believe, it operated to their perfect satisfaction. It is not a modification of any of the pessaries which have ever come under my observation, although in its present state it appears much like a modified Hodge's bow pessary, particularly as it can be made of the substance of the latter. The result has been obtained by tedious and numerous experiments and alterations, until it appears in its present simplicity.

Fig. 1 shows the instrument in its present condition. To facilitate the description, I shall denominate the transverse bars by the name of superior and inferior (anterior) arches, and mark them in the engraving with the corresponding letters S, and I; the junction of the antero posterior limbs, the lateral curves, right and left, marked in the engraving by R and L. S and I represent the anterior arches resting, when introduced, against the anterior wall of the vagina. S supports the womb through the fornix vaginæ; I rests upon or near the os pubis, according to the degree of tonicity of the vagina, from which point it derives its anterior support. The lower branches of the lateral curves R and L rest on each side of the vaginal aperture, in an antero-posterior direction, on the vaginal surface of the perineum. These prevent the instrument from rotating on the transverse and the antero-posterior axis. An additional support is gained by the contact with the elastic vaginal walls, and their close coaptation to and insinuation between the arches and curves of the pessary. It rests within the vaginal grasp as a segment of a solid cylinder would rest in the grasp of

FIG. 1.



an elastic one. In consequence of this nice and peripheral adaptation there is no obstruction of the vaginal space, which is such a desideratum in pessaries.

The distance between, including the substance of the anterior arches S and I, varies from $1\frac{3}{8}$ to $1\frac{4}{8}$ inches. This is the only dimension in all sizes of the pessary that always remains within the limits just mentioned; while the antero-posterior and transverse diameters vary according to the size of the instrument. The sizes correspond with the No. 10, 20, 30, 50, 60, and exceptionally 70 of the Hodge pessary. No. 40 is purposely left out, as it is simply a modified No. 30, and if transformed into an anteversion pessary, has the disadvantage of having too short an antero-posterior in proportion to the other diameters.

Mode of Introduction.—The patient being in the dorsal decubitus—the pelvis at the edge of the table, the knees flexed and well separated, and the heels resting on the edge of the table, at the sides of the body—place the pessary on a table, the superior arch S below and I above, R and L pointing toward the operator; then take hold of curve L with the right hand and insert curve R into the vagina, to the right of the patient, until a little more than half of the instrument is buried within, then make it turn on point R, as on a pivot, by pushing curve L toward the fourchette and the left side of the patient, so that, at the same time curve L slips into the vagina, the arch S will turn upward under the body of the womb and the arch I downward to the os pubis. This being accomplished, the womb will at once turn to the normal axis; if it fail to do so, use the pessary as a repositor, by pushing the arch I upward.

Difficult as this movement may appear on paper, it is extremely simple when witnessed, and, in fact, it is nothing more than reversing the easiest mode of removing the pessary, which is as follows: Hook the point of the right forefinger into curve R; pull it toward the posterior column (the central line) of the vagina and out through the vulva, when the balance of the instrument will follow like the hook out of the fish's mouth.

From an experience of over six years, I can claim the following advantages for this pessary:—

1. That there are very few cases of anteversion, if any, that can resist its action, when well fitted, unless there are adhesions of such firmness that the pressure necessary to overcome them would cause mortification or ulceration, or when the vagina is so relaxed, or the perineum so lacerated, that it cannot find a hold. A slight degree of laceration does not interfere.

2. That it has no fixed points of resistance, but is supported everywhere, and necessarily allows perfect freedom of motion to the womb.

3. That the patient is unconscious of the presence of an instrument except by the relief she experiences.

4. That it is as simple as can be desired, there being no mechanism or complications about it that may catch or injure the vaginal mucous membrane; nor unnecessary weight.

5. That it is inelastic, and therefore its operation under the perfect control of the operator.

6. That it consists of such material that it can easily be modified to suit the particular case.*

7. That it does not interfere with the marital relations.

* Dip it in oil or lard and heat the point or place to be bent slowly on a small flame, bend it to the requisite shape, and hold it so until cool.

8. That it is easily introduced and removed, and even by the patient herself, and that the largest size can be introduced through the same aperture as the smallest; and,

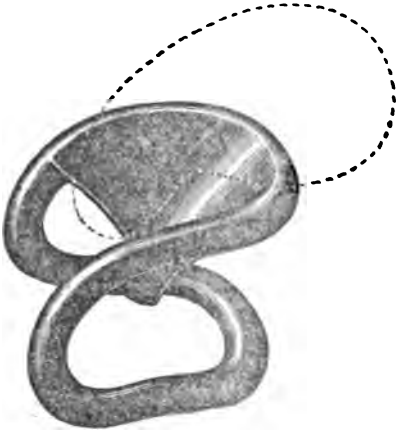
9. That it causes no obstruction to the rectum, or the bladder, nor sensible pressure anywhere else; in fact, if I can trust to my observation and that of others with this instrument, it is perfect in its working and simplicity.

Its Uses.—Besides its use in anteversion, it renders great service in some cases of anteflexion. Cystocele caused by anteversion or anteflexion can frequently be removed, together with the uterine deviation. External prolapse of the anteverted and anteflexed womb can generally be restored to its normal position and held there, when the perineum is intact and the vaginal contractility not entirely lost, as I have proven in several cases. By its agency and that of the anteflexion pessary, presently to be described, posterior section of the uterine cervix will frequently be unnecessary, and the consequent dangers avoided. The same may be said of the operation for artificial fistula for cystitis, if the latter be dependent on uterine deviations.

THE ANTEFLEXION PESSARY,

as seen in Fig. 2, consists of the anteversion pessary described above, with the addition of a slightly excavated and inclined blade or shield. It supports the body of the flexed womb in the manner of an anteversion pessary, and by this addition prevents the neck, which, of course, must follow the movements of the body, from falling into an abnormal position. In this way it exerts its straightening influence. Its entire action being limited to the anterior surface of the womb, there is no constriction to be feared. Like all flexion pessaries, it has the defect of working more completely in theory than in practice. Yet, assisted by means of well-directed manual efforts and the judicious use of the sound, astonishing results may generally be obtained. The sizes of this, as of the following instruments, correspond with those of the preceding one. It is to be introduced in the same way as the anteversion pessary.

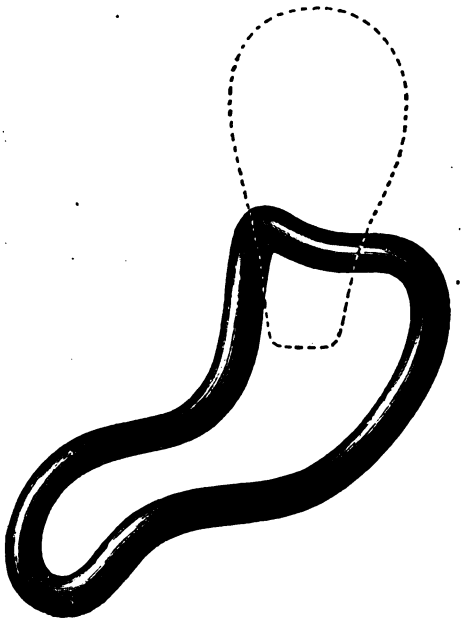
FIG. 2.



THE RETROVERSION AND LATEROVERSION PESSARY.

The retroversion pessary, Fig. 3, has been brought so near to perfection by Smith's modification of the Hodge pessary that I feel reluctant to introduce my modification of that instrument. Yet, as it may prove to be of considerable advantage in simple retroversion, and combining as it does the quality of correcting lateroversion of posterior inclination, I venture on the task. I do not incline to the belief that to correct a retroversion it is necessary or even advisable to alter the position to a complete anteversion, and therefore it will not cause surprise to observe that in my instrument I have lessened the superior arch. In addition to this, I have made a central depression from above downward, and from before backward, as shown in the engraving.

FIG. 3.



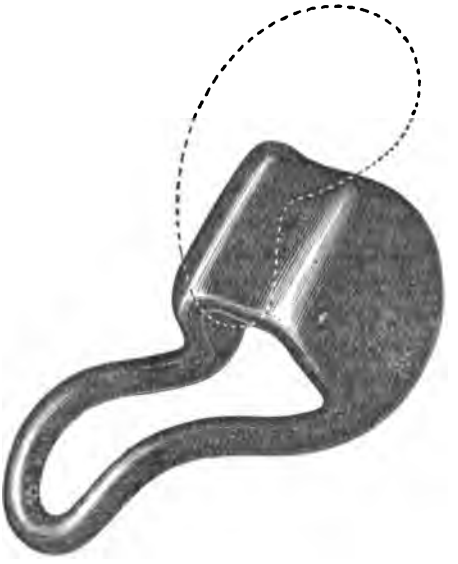
In the Smith and other pessaries the womb rests on the summit of an arch, in consequence of which it will occasionally slip off laterally, or by the same cause the pessary will be forced over to one side, as the inclined planes of the arch act like a wedge as soon as the equilibrium is lost by any cause. The depression in my instrument renders this impossible, and forms a good and safe nidus for the retroverted and the retro-lateroverted womb, with no possibility of a lateral displacement of the pessary or the womb.

By the addition to the instrument just described of an arched blade or shield, with or without a central depression, serving as a bed for the neck of the womb, connecting the upper cross bar and the two lateral branches of the pessary into a solid body for the distance of an inch and a quarter, as seen in Fig. 4, it will be transformed to a

RETROFLEXION PESSARY.

This pessary acts on the same principle as that for anteflexion, by replacing the body and preventing the neck from following its motion to an abnormal position in corporeal retroflexion, or *vice versâ*, by replacing the neck and arresting the motion of the body in cervical retroflexion, as the case may be; and thirdly, in cases of the third variety of flexion, where both the body and the neck are flexed, it insinuates itself between them, and in this way tends to straighten the organ.

FIG. 4.



This pessary is useful, even necessary, in another class of cases, and there are cases of simple retroversion, with a tendency to prolapse, or simply with great laxity of the vaginal tissues, in which, if ordinary retroversion pessaries are used, the neck of the womb will fall through the space in the pessary, and cause the same morbid phenomena that the fundus has caused before reposition. This occurrence is prevented by the use of the retroflexion pessary.

In summing up, I may state that this pessary combines the several qualities of a retroversion, retro-lateroversion, retroflexion and retro-lateroflexion pessary, and in

addition, the quality of protecting, especially the rectum from cervical compression, and the womb from being thrown into complete anteversion.

The Wet Blanket Pack in Dysmenorrhœa, Neuralgia, etc.

Dr. B. H. WASHINGTON, of Augusta, Georgia, says, in the *Southern Medical Record* of July 20th, 1877 :—

Having used water extensively in my practice, it may prove profitable to younger members of the profession to report some remarkably successful cases. We quickly abandoned the wet sheet pack, for it was too troublesome to use in acute febrile cases for the purpose of cooling the fever down ; wet towels, from clavicle to pubis, changed as often as they get warm, being far more convenient and efficacious. In chronic cases the cold wet sheet pack was too dangerous to confide to domestic management, for a severe or fatal congestion might result at any time. We, therefore, abandoned the cold wet sheet pack, and in all chronic cases substituted the hot wet blanket pack, and oftentimes with surprising success. The bed clothes should be spread on the bed, as many as may be sufficient to keep the patient perfectly comfortable; the blanket should be wrung out of water as hot as the hands can bear, and then spread on the bed, and the patient, stripped, be placed thereon as soon as the blanket is cool enough to allow its use ; the bed clothes should then be carefully tucked, so as to exclude the entrance of any air beneath, or the formation of any large air chamber beneath the covering, as in either case the patient will be very uncomfortable, and but little good will be accomplished. The patient should remain in the pack at least one hour and a half, and if comfortable, he might remain in four or five hours, or even all night, if quiet ; in the latter case, some one should sit up, so as to prevent the patient from throwing off the cover and incurring danger thereby.

The blanket pack should be used ordinarily about every alternate night, though in many cases, if used as an anodyne, it might be used every day ; if used too often the skin may be stimulated too highly and its action be rendered very irregular, sometimes stopping and starting again, causing a feverish pulse, perhaps half a dozen times a day. When the patient is first placed in the pack it is very agreeable, but in the course of eight or ten minutes the body abstracts so much heat from the blankets that a slight coolness is felt, but that soon wears off; if, however, the patient complains of feeling cool and uncomfortable all the time he is in the pack, it is a sure indication that the nervous system is considerably out of order. To prevent the patient from being so sensitive to cold, it will be advisable to use friction on the skin freely, and bromide of potassa or quinine internally.

The patient should be rubbed dry with warm towels, and should not be put in the pack in a cold room.

On Normal Ovariotomy.

A careful review of this operation is given in the *Medical Times and Gazette*, October 27th, 1877, from which we extract as follows :—

Professor Hégar, of Freiburg, has, in two cases, removed both healthy ovaries, in order to bring on the climacteric, and so lead to the cessation of hemorrhage from uterine fibromata. In each case other means had been tried, and had failed. This operation was chosen as being easier and less dangerous than the taking out of the tumor. Both parties got quite well, one without a bad symptom, the other after some suppuration in the abdomen. In each case hemorrhage stopped, and had r

recurred nine months after the operation. The fibroids, Professor Hégar was certain, had got smaller. The patients both gained strength and got fat. Dr. Trenholme, of Montreal, has also removed the ovaries in a case of fibroid tumor. Enucleation had been unsuccessfully attempted; the cervix had been incised, and many milder measures tried, without relief. The patient recovered well from the operation. Periodical pains and hemorrhage recurred afterward, though not, it would seem, to the same extent as formerly. Four months after, Dr. Trenholme thought his patient well.

These cases form a class by themselves. In them all, hemorrhage, the result of fibroids, was destroying health. The operator went on the sound principle that if he could lessen the blood supply, the hemorrhage would stop or diminish, and the tumor cease to grow. To do this, he removed the organs whose influence effected a monthly determination of blood. The result was as he had foreseen.

We next have some cases in which the ovaries were taken out to relieve distant symptoms, of which they were believed to be the cause. Hégar removed the uterus and both ovaries, to rid the patient of a most violent cough, which was thought to be due to anteflexion of the uterus, a conjecture supported by the fact that her symptoms were absent when the uterus was kept straight by a stem; but this instrument caused so much pain and hemorrhage that its use could not be endured, therefore Professor Hégar removed the whole organs. The patient perfectly recovered, and three months after the cough had not returned. Peaslee, of New York, took out both ovaries by abdominal section, for epilepsy, but the patient died from peritonitis. Dr. Battey, of Georgia, removed both ovaries from a patient suffering from amenorrhœa, with vicarious hemorrhages and epileptiform convulsions, which seemed to threaten life. After the operation, health greatly improved, the symptoms disappeared, and uterine hemorrhage set in regularly (we are not told for how long).

The last set of cases to which we shall refer are those in which the disease was presumed to be local. In four of these only one ovary was taken away. Three of them were under the care of Dr. Battey, one under Dr. Trenholme. In each case it was done for so-called "ovarian dysmenorrhœa." In one the ovary was enlarged and cystic, and in one adherent. In these cases the organs were removed through the vagina by incision in its posterior *cul-de-sac*. Three patients recovered well, one slowly. In three cases there was temporary relief, but the symptoms returned, as was supposed, in the other ovary. In the other case there was no relief to any symptom, except some local tenderness caused by the ovary which had been displaced. In one of them the other ovary subsequently went the way of its fellow; it was found to be adherent, which was not so when the first was removed; the patient recovered perfectly from the operation, but no benefit followed.

The course of these cases seems to prove that, even if alterations in the ovary were the cause of the symptoms, these changes themselves depended on some deeper peculiarity, less easily removed; for, if not, why should it have returned in the other ovary? The clinical lesson of them is, that our diagnosis of ovarian dysmenorrhœa is not yet certain enough to warrant the hazard of so serious an operation.

The evidence at present before us points to the following conclusions: That removal of the ovaries, in cases of fibroid tumor in which hemorrhage is so copious as to endanger life, and in which the conditions present make removal of the growth very unsafe, is a justifiable proceeding. It is not preferable to removal of the tumor, because, first, the ovaries are important organs, and the tumor a useless

cerescence; and, second, because the cure cannot be so certain or so complete. hat in reflex symptoms threatening life, and dependent upon the generative gans, it seems (if the cases are correctly reported) an allowable expedient, other eans having failed. Two conditions ought to be complied with before it is thought : the patient's state should be really dangerous; and it ought to be absolutely rtain (so far as is possible in a concrete science like ours) that the symptoms pend upon the reproductive organs. Lastly, that in the present state of our nowledge we are not able to be sure that pelvic pain depends solely and entirely on the ovaries. Until we have this knowledge we cannot think it right to subject ie patient to an operation of which the mortality at present is one in five, the cures ro in nine. This mortality might, doubtless, be lowered; but until we have ore precise diagnosis, we do not think the results can justify even a much less risk.

The Treatment of the Pedicle in Ovariotomy.

In a clinical lecture on a case of ovariotomy, reported in the *British Medical Journal*, June 16th, 1877, Mr. CHRISTOPHER HEATH remarked:—

The method of treating the pedicle I adopted in this case, viz., "tying and dropping," was brought into practice by the late Dr. Tyler Smith, who had a series of most successful cases, and it appears to me to possess two great advantages—1. That t is applicable to all pedicles, whether long or short; and 2. That it admits of mmediate closure of the wound in its whole length. My personal experience of he clamp is limited to a case in which a fatal result ensued from the slipping of the pedicle through the clamp, for I never again employed it; but I have seen it used frequently, and it does very well when the pedicle is long. But in many cases the pedicle is so short that very considerable traction upon the uterus is exercised in order to get the clamp outside the abdominal wall, thereby causing pain. Another objection is that the stump sometimes gives trouble if it becomes adherent to the cicatrix, a regular menstrual discharge taking place occasionally every month. Still, it is right that you should know that Mr. Wells has employed the clamp in the greater number of his cases. Mr. Baker Brown introduced the practice of dividing the pedicle with the actual cautery, and devised a cautery clamp. I have employed it in several of my cases with good effect, but I do not think it so safe as the ligature; for, however careful you may be to cut the pedicle slowly with an iron not too hot, so as to sear the cut edges thoroughly, there is always the risk of some small vessel bleeding and requiring a ligature, and sometimes the burnt edges become separated, and the bleeding is free. It is exactly the difference between applying torsion to a large artery and putting on a ligature; with the last, one feels perfectly safe, whilst with the former something may go wrong.

You may ask what becomes of the ligatures left in the abdomen. They become rapidly coated with lymph and buried completely, so that it is impossible to find them a few months afterward. Possibly silk, being an animal product, may undergo partial absorption, as has been suggested; but twine ligatures do practically just as well, and are as completely hidden.

The Treatment of the Different Forms of Amenorrhœa.

Dr. JOHN WILLIAMS gives the subjoined directions in an article in the *Lancet*, May 26th, 1877:—

Menstruation is and always has been Absent.—The great majority of cases of this

class which will come under your observation will be young girls between sixteen and twenty years of age. Many of them will suffer from anæmia, and disorders of the digestive organs. Your first object should be to treat these conditions, and by the time they are cured menstruation will probably be established. Time will, indeed, come to your help. Such cases are instances of late or tardy evolution of the generative organs. The form and figure may be well developed, but the uterus grows slowly, and the treatment consists in waiting and adopting all means that favor its growth. There will, after all, remain a few, very few, in which the discharge will not make its appearance. In these, it will be found that the uterus is small, and the best treatment is non-interference.

Menstruation is Scanty or Irregular.—If it be due to an undeveloped condition of the uterus, and if it be accompanied by no pain, the general health being good, it requires no special treatment. General means, which favor physical development, as exercise of all kinds, may be recommended. If the scanty or irregular menstruation be accompanied by pain, it comes under the head of dysmenorrhœa. If the uterus have attained its full size, you will in almost all cases, in all cases that require treatment, find a disordered state of the general health. The most common condition is anæmia. In such cases you should regulate the bowels, for there is generally constipation. Give iron, iodine, salines; good diet, fresh air, and exercise in the open air are essential. Exercises of all kinds are good—riding, walking, swimming, dancing. If the monthly molimen be present, emmenagogues may be prescribed; emmenagogues should never be administered when indications of ovarian and uterine action are absent. The medicines supposed to have a direct action in bringing on the menses are numerous, but few of them are of much or even of any value. The best are electricity, aloes, and the stimulating diuretics—nitrous ether, spirits of juniper, and oil of turpentine. Hot hip baths for five or six nights in succession before the expected return of the molimen are useful. Guaiacum, ergot of rye, oil of savin, cantharides, have proved successful in the hands of some. Dr. Atthill recommends the cold hip bath for eight or ten evenings in succession before the expected time.

Suppression of the Menses.—When the suppression has taken place suddenly during a menstrual flow, the patient should have a hot bath, go into a warm bed, and take a dose of Dover's powder. A stimulating diuretic, or a diaphoretic, should be at the same time prescribed. Should fever, heat of skin, vomiting, pain in the abdomen, and symptoms of local inflammation or of general peritonitis set in, they should be treated irrespective of the suppression. If the flow is not re-established, the case becomes one of chronic suppression.

Chronic Suppression.—The general health should be attended to, and if menstrual molimena be present they should be encouraged, and efforts made to establish the flow by the means already enumerated. If molimen be absent, you should limit your aid to the treatment of the general health.

III. DISEASES OF CHILDREN.

Thrombosis of the Brain, Heart, and Pulmonary Artery, as a Cause of Mortality During the Progress of Cholera Infantum, and its Prevention.

Dr. BEDFORD BROWN, of Alexandria, Va., says of this subject, in the Philadelphia *Medical Times*, September 15th, 1877:—

A very considerable proportion of the mortality arising from cholera infantum is due in reality to the development of thrombosis, either of the brain, heart, or pulmonary artery.

The pathological indications, both of the approach and full establishment of this condition, are highly characteristic, and differ materially from those of simple collapse attending cholera infantum.

Causes.—The original causes of these peculiar complications are not local in character, but are of a general nature, and are due manifestly to certain powerful impressions on the nervous centres and the vaso-motor system by the action of a high degree of solar temperature, by which that system and the great nervous centres, the brain and spinal cord, suffer from a state analogous to functional paralysis of a partial or incomplete character. Consequent and secondary to this influence, a series of changes occur in the vital and mechanical constitution of the blood, by which its solid and fluid constituents are rapidly separated, the latter being drained off from the former through the intestinal canal, by exosmose rather than by secretory action.

In infancy, the vital and chemical affinities existing between the blood constituents are not so close and intimate as in the adult constitution. This fact is observed in the facility with which the fluid portions are drained off in ordinary cases of diarrhœa. With the vaso-motor system partially paralyzed from the action of intense heat, and the blood largely deprived of its fluid, saline, and albuminous properties, a general condition is established exceedingly conducive to thrombosis either in the heart, pulmonary artery, or brain.

That complication of cholera infantum heretofore termed congestion of the brain has ever been regarded as one of the most alarming and grave to which infantile life is liable.

In the vast majority of these supposed cases of congestion of the brain and effusion in the cranium occurring in this disease, thrombosis is the true pathological condition; while passive congestion and serous effusion, if any, are only the remote results of the former.

The mere designation of this class of cases as congestion does not by any means explain their real character and import. At the same time, it tends to divert the attention from their true causes and the proper means for their correction.

The prime and original cause of a large majority, if not all, of those morbid phenomena which constitute the elements of cholera infantum, is found, as before stated, in an intense degree of solar heat acting on the tender organism of infancy, in which the nervous centres, the sympathetic system, and the blood-making process suffer principally. This truth is manifested in the excessive languor of the voluntary powers, the irregular, depressed, and frequent action of the heart, the inactive state of the digestive powers, and the torpor of the nutritive and secretory functions. In

consequence of this dangerous depression of the nervous system, blood disorganization and disintegration very soon begin, and proceed rapidly to a separation of its solid and fluid constituents by this process of exosmose. In most of these cases there is no evidence whatever of local lesions in the intestinal canal to explain this process of exosmose by which the constituents of the blood are so speedily separated.

The action of the heart in bad cases of cholera infantum becomes so enfeebled and irregular from the paralyzing influence of heat on the vaso-motor system, as is seen in the vomiting and purging, as to fail to propel the blood completely through the round of the circulation. Hence, when the vital influence of this system is lost to the circulatory organs, coagulation is liable at any time to occur in the heart and vessels.

Symptoms of Thrombosis of the Brain.—Thrombosis of the brain in cholera infantum is usually preceded for several hours by excessive restlessness, jactitation, and indisposition to sleep. When the condition has been fully established, the first intimation may be either general eclampsia or partial convulsive movements, confined to one side, one limb, or even the muscles of the face; while there may be, in other cases of a still more serious character, stupor, rapidly merging into profound coma.

Under these circumstances, the temperature of the body and extremities falls rapidly below the natural standard, while that of the head is rather increased.

This is also true of the early stages of embolism, or thrombosis, confined to the principal veins of one of the limbs. Immediately following the impediment, there is rapid increase of heat below that point in proportion to the œdema, then as sudden and rapid decline, until local death takes place. In the preliminary and primary stages, the pupil is always contracted. To such degree does this take place, that it is generally reduced to the dimensions of a pin-hole. But, as the convulsive movements subside and the comatose phenomena appear, the iris expands until it becomes a scarcely discernible ring, resembling the pupil of one under the profound influence of belladonna. Hence, a very contracted pupil occurring during an attack of cholera infantum denotes with much certainty a tendency to thrombosis of the brain. During the early stages of this latter condition the pulse always begins to increase in frequency, until during the climax the alteration is so great that the rate cannot be calculated.

Thrombosis of the Heart and Pulmonary Artery.—This complication usually appears in cholera infantum after a large number of serous intestinal discharges, copious in quantity, have taken place in rapid succession. It is always preceded by acceleration and difficulty of respiration, which continue to increase in proportion to the thrombic disposition. Thus, any unusual dyspnœa of a fixed character during the progress of serious cases of cholera infantum, without the presence of other pulmonary lesion, is a harbinger of evil, and denotes that thrombosis of the heart or pulmonary vessels is threatened. In simple collapse the complexion is pallid and white. But in thrombosis lividity, beginning in the extremities and lips, is always present, and denotes its development very early.

In some cases of this kind, lividity has been observed to such extent as to resemble asphyxia. The suffering infant gasps for air, as if laboring under some serious pulmonary disease of an inflammatory character. Yet in such cases the respiratory murmur is not only clear, but unusually loud and puerile.

On the contrary, the cardiac sounds are found to be exceedingly imperfect, and the rhythm irregular, while the action of the heart is painfully tumultuous, rapid, and feeble. Many of those extraordinarily sudden deaths from cholera infantum are

really due to this complication. In some cases, death occurred in from three to five hours after its development.

CASE 1. *Thrombosis of the Brain.*—A healthy infant, of eleven months, was attacked in the night with cholera infantum, and by nine o'clock in the morning, when first visited, had had ten or twelve copious discharges, with frequent vomiting. At that time all the indications were present of impending thrombosis of the brain, consisting of excessive restlessness, contracted pupils, great frequency of pulse, partial stupor, muscular contractions and twitchings, and also strabismus. These symptoms increased rapidly in gravity, and speedily ended in paralysis of one entire side, while the muscles on the opposite were in a state of constant automatic movement. Profound coma, with extreme dilatation of pupils, terminated the scene.

CASE 2. *Thrombosis of the Heart.*—An infant of only eight months, of previous good health, was attacked with cholera infantum of a violent type. When first visited, only ten or twelve hours after the onset, the respiration was so much accelerated and difficult as to call attention to the condition of the lungs. But the respiratory murmur was found perfectly normal. The complexion was so livid as to resemble that of a child partially asphyxiated. Such was the difficulty of respiration, that any exertion, even the acts of crying, taking water or nourishment, caused excessive dyspnœa. The systolic sound of the heart was entirely abolished, while in place of the rhythmic sounds there were only confused and irregular murmurs of an indistinct character.

These are true types of thrombosis, occurring during attacks of cholera infantum, which have not unfrequently come under my observation in past professional experience. Than these there are no morbid affections to which infancy is liable that are more fatal in results.

Treatment.—When thrombosis or embolism is once established in an attack of cholera infantum, the removal of the condition is of such a hopeless character that treatment, except for purposes of alleviation, is worthless.

On the contrary, much may be accomplished, both by therapeutic means and by a rational system of diet, to prevent the occurrence of these very grave complications. In the first place, it is necessary, as far as possible, to avoid the paralyzing influence of a high degree of temperature on the system. A change of 20° will almost invariably accomplish that result. If this be not practicable, then one of our best correctives is the use of the cold bath systematically night and morning, followed by ample and efficient friction previous to and during the attack. Whenever reaction follows, good is certain to result. Secondly, to arrest vomiting and purging, for the purpose of preventing undue waste of blood material. For the latter, enemata of water, frequently repeated, containing in minute solution alum or tannin, glycerine, and an appropriate proportion of tincture of opium. In these cases water is better than starchy matter as a vehicle, as it aids in supplying the wasted serum. To arrest vomiting, bismuth combined with minute quantities of cerium and alum, with the free use of ice and iced gum water.

There is one principle in regard to the administration of medicine which is often lost sight of; that is, minuteness of dose and frequency of time. I am convinced that much is lost often by making the intervals between the doses too long. From thirty minutes to an hour is a sufficiently long interval. A longer period than the former is often a dangerous delay. By this assiduous practice we can generally succeed in arresting undue drainage. The metallic astringents appear to act in these cases, when greatly diluted, on the mucous surface of the stomach and intes-

tines, particularly the alum, as a decided sedative. To correct that dangerous depression of the vaso-motor system, which often amounts to absolute paralysis of the entire organic system, the free use of alcoholic stimulants is necessary.

I have known an infant of twelve months, with a very dangerous attack of cholera infantum, to take a half pint of good brandy in twenty-four hours with marked benefit. One of the most important questions in this connection is that of maintaining the organic constituents of the blood in a complete state of solution. The blood cannot lose its fluid elements below a certain point without also losing its capacity for circulation through the capillaries. When this is reached, then death ensues, from capillary stasis.

Hence the necessity, in this and kindred affections, of the copious ingestion of fluids. Death does not result from the mere local disease of the bowels in cholera infantum, but from certain blood changes produced by inordinate drainage and depression of the nervous system, resulting either in thrombosis or capillary stasis.

In these cases it is but little of the solid elements which are lost, but the serous; thus it becomes our imperative duty to unremittingly replace this lost serum.

The method formerly was to restrict patients with this affection in the use of water and other fluids. I have lived to see both systems fairly tested, and am convinced from experience that the abundant use of cold water is not only a refreshment, but a necessity, in these cases. I am also convinced that under the former method these little patients have not only been made to suffer fearful torture from the careful and studious deprivation of cold water, but that a large mortality has resulted alone from this cause.

Iced gum water may be used *ad libitum* in bad cases. Nutriment must also be given in a perfect state of solution, ready for rapid and easy absorption.

In this way the blood is kept supplied with a sufficient amount of fluid material to retain its solid elements in a complete state of solubility, while the heart and great vessels have ample bulk to act on and propel the vital fluid forward to the capillaries.

The form of the particular nutriment to be adopted in cholera infantum is a question of vital moment, and one on which depends the final result.

In these patients it is too often the case that this is regarded in the light of a secondary matter, while all importance is attached to the power of medicine. Such is the difficulty of digestion and absorption of nutriment, and the utterly indigestible character of that generally used in these attacks of this affection, that not unfrequently the little patient survives the attack by living alone on the materials of his own body, which are only renewed after the power of digestion is restored. During an attack of cholera infantum, food containing fibrinous or caseous matter cannot be digested. Albumen in extreme dilution, as that of eggs beat up and highly diluted with sweetened water; the water in which good bread or crackers has been boiled; mutton or lamb broth, very delicately made; beef tea, made only by extracting the juice of the fresh lean meat with cold water, and then properly cooked, constitute forms of nutriment which can be absorbed and carried into the circulation without difficulty.

Cholera Infantum.

Dr. P. C. Coleman read before the Rutherford County Medical Society a paper upon this subject:—

In a recent article on cholera infantum, by an eminent practitioner, we find the

following: "Without attempting to show reasons why mercurials are not useful, experience has taught me that they are not only useless, but often manifestly pernicious." In the same number of the journal in which the above occurred we also have the opinion of another eminent practitioner: "Foremost among the remedies in cholera infantum I do not hesitate to place calomel." The question suggests itself, why such difference of opinion among those who have had the best opportunities of investigation? I think the answer will be found in this: Writers do not agree as to the form of this disease; some applying it to the various summer complaints of children, and others limiting it to one separate and distinct disease, which, to my own mind, is the correct view to take, and should be restricted to that infantile diarrhœa in which the stools are watery, accompanied by a great thirst, vomiting and rapid emaciation. The temperature is usually not much elevated. The disease occurs usually under three years of age, and may be said to be limited to the period between the months of May and October. The causes are both external and internal, the former being often easily accounted for, but the latter are considerably obscure.

The name assigned is an evidence of its connection with heat; another exciting cause is improper diet. The rapid development of the intestinal follicles, and consequently functional activity, is the chief internal cause. Dentition is considered by some to be one of the chief causes, but to this I attach no importance. The disease at times has its origin in malaria.

The diagnosis of cholera infantum presents little trouble. It is usually preceded by a simple diarrhœa, the evacuations being more or less numerous and copious. At other times it is developed very abruptly. In such cases the stools are sometimes of a green or yellow color, but oftener the characteristic watery, light-colored evacuations prevail. Simultaneous with, or very soon after the diarrhœa, vomiting sets in. Thirst for cold drinks is always a prominent symptom, the little patient begging for cold water and drinking it with great avidity. In violent attacks (the disease proving fatal) the eyes are sunken, languid, and glassy, the countenance dull and shrunken. The emaciation in this disease is very rapid, the stools offensive, complete coma may result, and death is often preceded by convulsions.

Effusion into the brain sometimes takes place, constituting acute hydrocephalus. Post-mortem examinations reveal the fact that cholera infantum is essentially an inflammatory disease. The mucous membrane of the intestines is found in a softened, vascular state, with turgescence of the intestinal follicles; the solitary glands and Peyer's patches present an inflammable hyperæmia. In some cases ulcerated patches are found throughout the intestinal canal.

How this disease is to be treated is a vexed question, the vast number of remedies offered for its relief and cure proving the difficulty of its management. I think the number of *cases few* in which the treatment should not be commenced with the much-abused calomel, giving it in one-grain doses every hour, until it has had the desired effect of changing the character of the stools. It is also one of the best remedies to allay the vomiting, which if it fails to do, I then give hydrocyanic acid. If the vomiting prove very obstinate, it will be necessary to place a sinapism over the epigastrium. Ice, in small quantities, is better to allay the thirst than so much water. For the arrest of the exhausting watery discharge, *which is the chief* object in the treatment, opium is the best of all remedies. Laudanum I prefer to the other preparations. After the arrest of the discharges the subnitrate of bismuth and acetate of lead are useful. If the case assume a chronic form, the vegetable

astringents may be substituted in place of the mineral, tincture of catechu and kino being useful. If of malarial origin, quinine is indicated. If the head is hot and brain symptoms develop themselves, the child being threatened with coma, cold water or ice may be applied to the head.

Another remedy which has not received the attention it deserves in the treatment of this disease is carbolic acid, and as a preventive it is undoubtedly the remedy. In delicate children, liable to an attack of the disease, it should always be given.

Attention to the diet is of the greatest importance. Milk should be prohibited; the diet should be simple, consisting of whites of eggs, to which ice and a little sugar may be added. The clothing light, and the child not confined to a darkened room, as is so often done in warm weather, light being as essential to health as pure air. In mild cases gentle exercise out of doors is advisable.

Report on the Experimental Use of Amyl Nitrite in Ten Cases of Pertussis.

Dr. GEORGE BAYLES, of New York, read before the Medical Society of the State of New York, June 20th, 1877, a paper on this subject, which appeared in the *Virginia Medical Monthly*, August, 1877:—

In the *American Medical Weekly* of November 18th, 1876, mention is made of the original contribution of Dr. Sawarowsky to a St. Petersburg medical journal, under date of September 30th, 1876. The quotation reads as follows:—Dr. Sawarowsky writes to a St. Petersburg medical journal recommending the inhalation of a mixture containing one drachm of chloroform and three drops of nitrite of amyl in whooping cough. Besides this, he administers for three days, at intervals of two hours, a powder composed of the cyanide of silver and pure argil or alumina, one-twelfth of a grain of the former and three grains of the latter. He likewise advises prohibiting the use of articles of food and drink that are hot or quite warm. The writer says under this plan of treatment the most obstinate cases have yielded within a few days."

On April 12th, 1877, my friend, Dr. P. B. Porter, of New York, called my attention to the article in the Louisville journal relating to the views of the Russian physician. Dr. Porter has, for several years past, been studying the various methods of treating pertussis; but at the time of reading his latest paper upon this subject he did not know that amyl had ever been used. I should suppose, therefore, that the Louisville journal was the first American publication to notice the Russian article.

All the cases embraced in this review had passed from under clinical observation previous to March 22d, 1877. This was nearly a month before Dr. Sawarowsky's note came to my knowledge. At the time of making my experiments, I had no idea that the value of this agent had been tested in whooping cough. Had I known it I should have been prepared to verify the findings of others. As it was, I was obliged to pursue what, to me, were initial inquiries.

Whenever experimental courses are adopted, they should, I think, guarantee a practical reinforcement of the benefits of the palliative measures held in esteem in common practice, for these cannot be wholly set aside during operations of an experimental character. It does not follow, as a matter of course, that the real results of tentative practice under such circumstances are masked and unrecognizable; for with the work of patient observers who have faithfully recorded their experience in cases numerous enough to prove anything, and show precisely how

much may be expected of their respective methods, it is never very difficult to estimate how much more any supplemental means may have accomplished. It was, therefore, in the light of an aid to trusted palliatives, or a new element of power in alliance with other approved alleviating agents, that the peculiar properties of the nitrite of amyl were tried in this disease in conjunction with some of the usual remedies. The best endeavors of the physician are directed toward assuaging the intense force of the paraxysm of cough. Until comparatively recently, nothing in medical science had been discovered sufficiently potent either to avert the invasion or abridge the progress, in any appreciable degree, of this distressing malady. To abate the violence of the chief symptom, ever so slightly, will be to effect an excellent result, as naught but the hard exhausting cough need be regarded either as an element of danger or of special inconvenience in this disease. The complications which sometimes arise in certain of the unfavorable cases of pertussis are always induced and sustained by this one superdominant symptom, whatever may have been the predisposing systemic conditions.

In the cases to which I now ask your attention, the usual domestic remedies proved as ineffectual as usual, and the whoop was generally established when the physician was called.

In every instance, save one, regular treatment began with quinine, according to the suggestions of Professor Binz, of Bonn University, and practice of Dr. B. F. Dawson, of New York.

If I desired to discontinue the use of quinine, I would occasionally use the chloral hydrate, according to the suggestions of Ferand, Ridger, and Karl Lorey, and the practice of Dr. P. B. Porter, of New York.

Treatment, however, invariably drifted into the use of the amyl nitrite according to suggestions not derived from any outside source. These remedies all tended toward accomplishing the desired object, and though each gave evidence of its prime utility, it was reserved for the amyl to be the most promptly remedial.

In quinine there appears to be a real antidotal action to the specific root element of this disease (whatever that may be); therefore, an under current of quinine, so to speak, kept up throughout the progress of the disease, cannot but be of advantage. Chloral is a sedative nervine of very efficient action, and beneficial in an eminent degree where nervous excitement is intensified by the apprehension of an approaching paroxysm of coughing. This agent, therefore, was the most serviceable in the cases of the elder patients.

Amyl comes in as a direct anticipatory measure for the relief of the cough as to its frequency, and also its pacification as to paroxysmal energy. From this point on the cases must speak for themselves, and I think they will be found to illustrate the positive value of nitrite of amyl in allaying the violence and limiting the duration of the cough of pertussis.

Case 1.—Anna B., ten months old; nursing from breast. December 10th, 1876. Has had cough for two weeks, and within three days of my first visit the whoop was recognized. Ordered a solution of sulphate of quinine, five grains to the ounce of water. Dose, half a teaspoonful every hour.

December 12th. Found an appreciable moderation of symptoms, though paroxysmal coughing is steadily recurrent. Decided to continue the quinine, and to administer nitrite of amyl by inhalation. One minim was the allowance. The drop was allowed to fall upon the bottom of the interior of a tea-cup, which was inverted over the mouth and nostrils of the patient, but not so closely that the edges of the

cup would come in contact with the surface of the skin. This was done the instant the period arrived for the violent cough to be repeated. The cough commencing and gathering force was a signal to use the amyl. The prompt effect was so to modify the paroxysm as to silence the peculiar sonorous inspiration, repress the vomiting, and to allow the cough to assume the character of that which belongs only to acute bronchial catarrh.

Three visits were made, each two days apart, and finding the report at the last visit to be about equal to perfect recovery, I considered the patient cured. At a subsequent time I was enabled to learn that there was no return of the paroxysmal cough after my visits had ceased, and the amyl was wholly discontinued after being used one week.

In this case the amyl seemed to put an effectual check upon any tendency for the peculiar cough of pertussis to gain duration by the mere force of habit.

Case 2.—William T., aged five months; nursing from the breast. Convalescent from cholera infantum, with which he was attacked late in the summer. December 23d, 1876. Patient weak and sickly from debility of the organs of assimilation. Common cough had been followed by a cough with whoop two or three days previous to my first visit. Patient has coughed altogether from fourteen to twenty days. The paroxysms are very alarming, considering the tender age of the patient and the general lack of constitutional vigor. Ordered a solution of sulphate of quinine, five grains to the ounce of water, giving half-teaspoonful doses every hour.

December 25th. No noticeable improvement; paroxysms every half hour (or rather less), attended by vomiting and discoloration of features. A diarrhœa has set in which threatens to prove fatal. Stopped the quinine and ordered—

℞.	Argenti nitratis.	gr.ss	
	Aq. puræ,	℥j	
	Tinct. opii,	gtt.x.	M.

Sig.—Twenty drops after every watery stool, and the same given in one-drachm parts per enema of starch or gum water.

Brandy cloths (hot) to the abdomen. Dry flannels to the rest of the person, and woolen socks to the feet. Within twenty-four hours the diarrhœa was restrained and the strength a little revived. The paroxysms of cough had become less violent, and possibly less frequent.

December 26th. Found patient a little improved, though the paroxysms are still very severe, and occur about once an hour. The nitrate of silver had been of benefit to the intestinal track, and I thought I could observe that it had done something to allay the force and frequency of the cough.

The iodide of silver has been used with great benefit by Dr. Robert Bell, of Glasgow, in pertussis, and it is probable that the nitrate of silver would have some effect in the same direction. The silver salt doubtless did something to prevent reflex action being conveyed to the pulmonary branches of the pneumogastric nerve.

December 27th. Continued treatment without change.

December 28th. No diarrhœa; cough still very violent, but paroxysms not so protracted or recurring so often. Began the use of amyl nitrite, giving one-minim doses by inhalation. The effects described in Case 1 were repeated in this case.

December 29th. Quinine was resumed, and nitrite of amyl continued. In a week more I ceased attendance, as the cough had rapidly resolved itself into the variety characteristic of ordinary bronchial catarrh.

CASE 3.—Emma L., twelve years old. Exposure to pertussis occurred in school. Patient had coughed two weeks and whooped three or four days when my attention was called to the case. Ordered quinine in solution, fifteen grains to the ounce of water. One teaspoonful every hour.

January 17th, 1877. Whooping and vomiting every two or three hours. Increased the strength of the quinine solution to one drachm to the ounce of water.

January 19th. Whooping violently; paroxysms occurring regularly every three hours; vomiting often; face turns black. Ordered three minims of nitrite of amyl, to anticipate by about five minutes, if possible, the expected paroxysms. I administered the amyl myself the first time, as the opportunity presented itself during my visit. It seemed to diminish the force of the cough, and no vomiting occurred.

January 20th. Parents have been faithful in the use of the amyl, but make no report of importance, save that there is no longer any vomiting nor blackness of face, and the patient seems less exhausted after coughing.

January 21st. Parents report the sound of the whoop gone, and interval between paroxysms lengthened by an hour or two. Lottie and Thomas, sister and brother of the patient, are coughing, but have not yet developed the whoop. Ordered continuance of the amyl, and to give the quinine solution to the sister and brother.

January 22d. Patient is free from any cough that is specially characteristic of pertussis. Has good appetite; sleeps through the night, seldom waking. Ordered the quinine to be continued, and to suspend the use of the amyl.

January 23d. Patient needs no further attention, as she is quite free from any distress, or even of inconvenient symptoms.

The patient's sister has a decided whoop, coughs convulsively, and vomits during the paroxysms.

CASE 4.—Lottie L., ten years old; sister of the patient alluded to in Case 3. January 23d, 1877. Whoops to-day for the first time; has been coughing about a week; has been taking quinine for about two days. Ordered to continue the quinine.

January 25th. Paroxysms pretty violent; vomiting and changing color. Ordered amyl nitrite, two minims, whenever the paroxysms can be anticipated by a few minutes, or even during the early moments of the cough.

January 26th. Interval between the paroxysms very much lengthened; whoop decidedly toned down; coughs once in four or five hours.

January 28th. Patient doing well; whoop almost gone; no vomiting. Ordered to continue the amyl.

Patient's brother, Thomas, developed a whoop yesterday, but has no vomiting.

January 30th. Allowed the amyl to be discontinued, as the patient has no symptom more distressing than an ordinary cough.

CASE 5.—Thomas L., six years old; brother of Emma and Lottie L., mentioned in Cases 3 and 4. January 28th. It was reported to me that this patient began to whoop yesterday, 27th instant. Has been taking quinine about seven days. There is no excessive violence of the paroxysm, and no vomiting. Ordered same treatment to be continued without change, excepting to give a half-teaspoonful of the elixir acidi hydrobromici every three hours, to relieve the symptoms of quininism complained of.

January 30th. Found patient about the same as at the time of my previous visit, but relieved of the distressing head symptoms due to the quinine. Ordered nitrite of amyl, two minims, as in the case of Lottie L., and awaited results.

February 1st. Patient whooping at rare intervals, and as it is now difficult to

time the use of the amyl accurately in advance of an expected paroxysm, it is given with caution in the first stage of the cough.

February 3d. Patient doing exceedingly well. Does not take an inhalation of amyl oftener than twice in the twenty-four hours.

February 5th. Ordered the amyl to be stopped, as it can only be given at random with reference to any serious paroxysm. Some of the fits of coughing, that are very threatening at their commencement, seem to expire ignominiously in the first stage, even when the amyl is not given.

February 6th. Was sent for in haste to see the child in a convulsion. Spasms of a clonic variety succeeded each other for several hours. They were at last controlled.

I could not account for the spasms, but possibly they are to be attributed to the prolonged and rather free use of quinine in a child of only six years of age. Certain is it that the quinine, which I thought to be essential or extremely useful, would have been laid aside, because of creating too much distress in the cerebral nerve centre, had it not been for the confidence I felt in the efficient antidotal action of the hydrobromic acid. The spasms did not return, and the cough needed no further attention.

CASE 6.—Maria Louisa M., seven years of age; much emaciated and weakened in consequence of a recent attack of erysipelas, which had spread from the genitalia to all parts of the body below the axillæ. February 9th. Has had a cough of paroxysmal character about fourteen or sixteen days. A well-developed whoop has been noticed for about four or five days. Vomiting invariably occurs with every round of spasmodic coughing. Ordered the usual hourly doses of quinine, of the strength of fifteen grains to the ounce of water.

February 13th. No change, excepting the abatement of the vomiting. There is the usual amount of expectoration, but no ejection of the contents of the stomach. There are about fifteen paroxysms during the day, and they occur as frequently as every half hour during the night. The patient, owing to previous sickness, had become so tolerant of quinine that I felt it proper to increase the strength of the solution from fifteen to twenty grains to the ounce of water.

February 15th. Intervals are longer between the paroxysms, but the cough is so hard and prolonged that the patient is greatly weakened and distressed. Patient suffers great dread of the usual spells of coughing. Ordered four grains chloral hydrate, in sweetened water, every three hours, and that the quinine be continued, omitting only the doses due in the hours devoted to the chloral.

February 17th. A little change for the better in all the symptoms. Ordered to continue treatment without alteration.

February 19th. Paroxysms somewhat moderated in intensity, but still very exhausting. There are about eight paroxysms during the day, and about three or four during the night. The chloral seems to have done considerable service, but every item of improvement is so slowly achieved that more rapid relief would be desirable. Ordered two-minim doses of nitrite of amyl by inhalation whenever the sensations indicated the imminence of a storm of spasmodic coughing.

February 20th. Patient has used the amyl four times since last visit, each time with long intervals of rest.

February 21st. Patient has used the amyl twice since last visit, and says that she thinks she will not need it any more. Recommended its temporary suspension.

February 22d. Patient has suffered an increase in the force and duration of the

cough and a lessening of the length of the rest interval. Ordered the quinine to be continued, as usual, but to wait a while before resuming the amyl.

February 23d. Patient seems to be in no respect better than yesterday. Ordered the resumption of the amyl.

February 24th. Patient much better.

February 25th. Patient still better.

February 28th. Patient doing well, with only one or two paroxysms of cough during the twenty-four hours, and "romping" does not seem now to induce a cough. Advised the amyl to be discontinued.

March 5th. Patient's parents had assumed the responsibility of resorting to the amyl two days ago for about twenty-four hours, giving it three times.

March 9th. Quinine is no longer deemed necessary. The patient is practically free of pertussis. She soon became hale and hearty, and better in health than ever before.

CASE 7.—Annie A., aged three years and six months; very much debilitated by the effects of a recent attack of diphtheria. There had been cases of whooping cough in the house where the patient resided. February 10th, 1877. The cough was nearly incessant, and was spasmodically violent as often as every half hour, day and night. Her strength was not equal to such a strain, as she had been coughing for nearly a week with very little restful intermission. Ordered quinine in solution, five grains to the ounce of water, every hour a teaspoonful.

February 12th. Frequency of cough seems to be diminishing.

February 14th. Coughing reduced to the paroxysmal periods only, but no less violent than when the quinine was first administered.

February 16th. Report the same as at last visit. Ordered the amyl nitrite in two-minim doses about every three hours, an effort to be made to anticipate, with sufficient promptness, a violent paroxysmal cough.

February 17th. Received report that the paroxysms were abated in force, duration, and frequency. Treatment continued.

February 19th. A still better report of general improvement.

February 21st. Amyl has been used only once in the past twenty-four hours, and only three times in the past thirty-six hours. Ordered the use of amyl to be discontinued.

February 23d. Amyl has been used twice since my last visit.

February 25th. No amyl has been used since last report, as cough is entirely relieved. Patient was sent to the country to her relatives, to recuperate.

CASE 8.—Robert A., four years and four months old; brother to patient described in Case 7. He also had some traces of diphtheria, but was not much weakened thereby. February 28th. Exposed like his sister to the influence of whooping cough, within their own dwelling, he began to cough about the time of my first visit to his sister, but it was not until two days ago that he became subject to violent spasmodic paroxysms of cough, that exhausted his strength. I had not ordered quinine during the preliminary cough (though quite certain that he was developing a whooping cough) because he gave his parents so much trouble in administering medicine of any kind, as shown during his previous illness. I resolved to try the amyl without the quinine. Ordered nitrite of amyl, two-minim doses, to anticipate the paroxysms, as nearly as may be, but not oftener than every two hours.

March 1st. No abatement of the cough, excepting at night. He will now sleep the night nearly through without a serious "spell of coughing."

March 3d. Same report as at last visit.

March 5th. Same report. Thought the general tone of system betokened the need of the supporting effects of quinine, therefore ordered quinine sulph. in solution, eight grains to the ounce of water (a teaspoonful every hour), and to continue the amyl.

March 7th. Every symptom markedly improved.

March 9th. Further improvement, and treatment to remain the same.

March 11th. Amyl given three times every twenty-four hours since the last visit. Every symptom altered for the better.

March 14th. Amyl given only four times since last visit.

March 17th. Amyl given only once since last visit. Parents thought that the whoop was returning, but this was probably an error of judgment. Ordered amyl to be stopped and the quinine to be continued. Doses to be given at intervals of every three or four hours.

March 20th. Saw no reason for continuing treatment, therefore advised the parents to allow the patient to join the sister in the country. About the middle of April they returned to the city, looking rugged and well.

CASE 9. Allen N. N, nine months old. Nursing from the breast. March 3d. This little creature was in good health and well nourished, but was teething at the time he developed whooping cough. The exposure to the disease could readily be traced to where the mother and child had made a visit. Coughing had been violent and paroxysmal for about a week. A classical whoop had signalized the cough for two or three days. Rest at night seemed to be altogether broken up. Ordered quinine in solution, five grains to one ounce of water. Dose, one half-teaspoonful every hour.

March 4th. Stomach very much disturbed. The bitter of the quinine has created a gastric sensibility that it seems necessary to allay. Ordered the quinine to be stopped for a few hours.

March 5th. A physician residing near the patient was called in, in haste, to relieve a sudden clonic spasm. Dental irritation added to the exhaustion produced by the severe coughing; also loss of rest, vomiting and the constant nausea excited by the bitter solution, had been enough to give rise to this form of nervous action. Scarifying the gums and other appropriate treatment relieved the convulsions. I ordered a combination of milk, lime water and "cordial d'anisette" (a commercial elixir of the pimpinella anisum) to be fed to the infant, by the teaspoonful, every few minutes, excepting when disposed to sleep. The effect was everything that could be desired, and was continued for three days.

March 8th. Found the patient in much the same condition as previous to March 3d. Last night the rest was much disturbed by severe fits of coughing. Ordered the nitrite of amyl to be given by inhalation, in one-drop doses, in anticipation of violent paroxysms, as often as three times in the twenty-four hours.

March 9th. Found the patient tolerated the amyl very well, and a noticeable abatement in the force and frequency of the paroxysms of cough had been the result. Ordered this treatment to be continued.

March 10th. Every morbid symptom apparently losing identity. Ordered the amyl to be continued.

March 11th. Every good expectation realized.

March 13th. Ordered the amyl to be suspended for twenty-four hours.

March 14th. Paroxysmal coughing, though quite atonic in its character, has been

observed to gain a little in force, and the night's rest has not been so good as for two or three preceding nights. Advised waiting another day for further observation.

March 15th. Precisely the same report, and it was evident that the symptoms were regaining force. Ordered the amyl to be resumed.

March 16th. Symptoms seem to be under wholesome restraint.

March 18th. No whoop in the cough, and cough much lighter.

March 20th. Ordered the amyl to be stopped, as the cough has no characteristics that demand anything more than certain demulcent expectorants of the most ordinary kind. I kept the patient under observation for several days, but had no occasion to suggest any form of treatment after March 20th. The case, as one of whooping cough, had practically terminated after March 15th, or twelve days after I first saw it, and seven days after the use of the nitrite of amyl had been begun. Nursing from the breast had been interrupted for three days, viz., from the 5th to the 7th inclusive, but had been resumed without much inconvenience to the mother, and no rebellion on the part of the infant.

CASE 10.—Amanda T., one year old; nursing from the breast. March 13th. This infant had cough for two or three weeks, until on her birthday (10th instant) she developed a whoop. Every paroxysmal return of the cough was now well marked by the peculiar sonorous inspiration, and as many as eight or ten attacks occurred on the nights of the 12th and 13th. I resolved not to give quinine, lest I should thereby interrupt the desire to nurse, and consequently the use of the mother's breasts. The mother was anxious to preserve that function for special reasons, which received my sympathy and approval. I ordered the nitrite of amyl, in one-minim quantities, by inhalation, to anticipate at first every alternate paroxysm.

March 14th. Had no reason to relinquish the remedy, nor to alter the directions.

March 15th. Patient improved; evening and morning cough much the same, but nights less disturbed. Ordered the amyl to be given, as far as possible, in anticipation of every paroxysm.

March 16th. Parents report that the child seldom whoops, and has fewer fits of hard coughing. They gave the amyl eight times since my last visit, but only twice in the night.

March 18th. No whoop is now noticed, and the coughing, though by spasmodic returns, is very much lighter and less frequent. Ordered the amyl to be stopped for a while, to see how we ought to proceed.

March 20th. Parents were decidedly of the opinion that the amyl ought to be resumed, as they thought the graver cough symptoms were returning. I ordered the amyl to be given in advance of every alternate paroxysm, as nearly as it would be possible to observe that plan.

March 22d. The parents had suspended the use of the amyl of their own accord since my last visit, after three inhalations had been given. The patient had now no cough that demanded extraordinary means to allay, and I considered the case as one that the parents were themselves competent to manage for the future. At a subsequent visit of inquiry, I learned that nothing had occurred after my last visit calling for any further medical attention, either professional or domestic.

These few cases show that the nitrite of amyl is potential, to a degree important in practice, in allaying the characteristic and most distressing symptoms of whooping cough; that no antagonism exists between it and at least one approved and valuable remedy, viz., quinine; that it is not necessary to suspend the use of amyl at any

time in consequence of danger arising from the too powerful action of any of its physiological properties. Here permit me to quote briefly Dr. S. Weir Mitchell, who says: "I find physicians very timid as to this remedy; but, after much and long use of it, I have altogether lost the dread of it with which I began."—*Medical Times, March 6th*, 1875.

Dr. Hutchins, of Brooklyn, remarks "that there appears to be very little danger from the use of amyl under any ordinary circumstances. In the case of anæmic persons, by whom a larger quantity is required, it should be administered with caution. Beyond this particular it is comparatively harmless. Those who have used it freely have learned to dismiss their fears, but not of necessity their sound discretion, the exercise of which invariably secures safety." In my cases, the required therapeutic action seemed to monopolize all that the drug was capable of affording, and the dreaded physiological action was, consequently, neither conspicuous, threatening, nor at any time dangerous.

What it is fair to assume regarding the therapeutic action of the amyl in this affection must depend upon our familiarity with and confidence in the experiments that have been made with this drug by many reliable practitioners within the past ten years, in maladies of a kindred nature.

Drs. Brunton, Leishman, Anstie, Thompson, H. C. Wood, Jr., Connor, Madden, and Osgood unite their testimony in approval of its use in angina pectoris. Drs. Jones, Connor, Duncan, Flagg, Kitchen, Pick, Leiser, Jastrowitz, and Osgood declare it proved effectual in cases of spasmodic asthma.

Drs. Janeway and Minich report that certain grave conditions arising from structural disorder of the heart, and failure of the heart's action, were relieved by nitrite of amyl.

Drs. S. W. Mitchell, Browne, Jastrowitz, McBride, H. C. Wood, Jr., and M. Bourneville give unequivocal testimony of its value in epilepsy. Drs. Foster, Funkel, and Forbes report remarkable success in the treatment of tetanus with the nitrite of amyl.

I have seen satisfactory notes of the employment of this drug in cephalalgia, hemicrania, facial neuralgia, the cough from congestion of the fauces and the whole respiratory track belonging to acute bronchitis, trismus nascentium, hysterical convulsions, cardialgia, gastralgia, colic, cholera, dysmenorrhœa, puerperal convulsions, lead colic, hiccough that resisted all other treatment, blepharospasmus, various forms of spasm, cold stage of intermittents, sea sickness, chloroform narcosis, etc., etc.

Each and all of the diseases mentioned in the foregoing list have been submitted to the nitrite of amyl treatment by accomplished and trustworthy practitioners, who have lucidly recorded and frankly published their experience, and in all these cases (indeed, many of each) the action has been most favorable and worthy of repetition.

The former President of the Medical Society of the County of Kings, in his report upon amyl nitrite, published in 1876, presents his views in the following language:—

"According to my experience, the nitrite of amyl is a relaxer of spasm in all involuntary muscular fibre; it possesses the power of lowering the arterial tension; it increases the expansive movement by relaxing the muscular walls of the arteries; it causes dilatation of the brain vessels, and relieves hyperæmia of the spinal cord; it increases and maintains the temperature of the body.

"It is primarily a remedy for spasmodic action, where there is probable spasmodic contraction of the capillaries; it acts promptly; it is manageable, for the flushing of the face is usually coincident with relief of the symptoms for which it is exhib-

ted, and suggests the withdrawal of the drug; it does not act unexpectedly, *i. e.*, ut of proportion to its dose; it leaves no unpleasant sequelæ. Its curative power lepends mainly, if not exclusively, on its interruption of a pathological habit."

This last assertion seems to apply with peculiar force to pertussis, for if there ever vas a train of symptoms markedly prone to lapse into conditions governed solely by iabit, that train of symptoms would be those belonging to whooping cough. This endency is only prevented by cutting short the disease in its earlier stages.

Dr. Mader's views, recently expressed in a German publication, are worthy of consideration, as suggestive of that to which amyl owes its remedial action, in disorders of this nature. He says: "It is quite open to question whether the property of nitrite of amyl, of dilating the vessels, is really that to which it owes its therapeutic effect, and is not rather a disagreeable accompaniment, while its useful effects are due to the production of a transitory narcosis analogous to that produced by alcohol, ether, or chloroform."

Those who are acquainted with the contributions in pathological anatomy recently presented to the Academy of Medicine of Paris by M. G. de Mussy, and are inclined toward his views, so long maintained, that whooping cough is an internal eruptive fever, which he thinks his investigations and specimens fully demonstrate, will possess not only a rational theory concerning the etiology of the cough of pertussis, but also something very practical upon which to base a confident expectation regarding the beneficial effects of the use of amyl.

The Prognosis in Croup.

In the *Union Médicale* for August 2d, 1877, Dr. ARCHAMBAULT, of the Hôpital des Enfants Malades de Paris, contributes a clinical monograph on croup, dwelling chiefly upon the question of prognosis in the various forms of croup, and upon the favorable results of tracheotomy in the present day as compared with earlier times.

In considering the value of the statistical returns of the mortality of croup, it must be remembered that the mortality is greater in some years than in others, being usually highest when the epidemic is extensive. Although in some epidemics a majority of cases are grave from the outset, in other epidemics most cases are benign. The most favorable years have been those in which the disease has been sporadic, as in 1868, when 31 out of 74 cases recovered. There are some points which may be observed in individual cases of great importance in prognosis, thus well-marked angina and nasal or cutaneous diphtheria are symptoms indicating danger; hemorrhages also indicate a grave prognosis. A point of some importance is to detect bronchitis and broncho-pneumonia, which it is difficult to do by physical examination when the larynx is greatly obstructed; such indications as a rise in temperature and increase in rapidity of pulse and respirations must often be relied on. All those cases in which croup is a complication of a specific fever, as measles, scarlet fever, typhoid, etc., must be considered unfavorable. There is usually in these cases no false membrane, but rather an ulcerative laryngitis. This complication may be detected by alteration of the voice and the slow onset of asphyxia. These cases rarely recover after tracheotomy. There are certain conditions in the patient which indicate an unfavorable prognosis, as previous debility and an age under three years. The more rapid the onset of the disease the greater the danger; occasionally croup may pass through all its stages in twenty-four hours, but such cases are rare; as regards treatment, no plan of medication has a specific action upon croup, but tracheotomy has saved many lives. In 1813 Royer-Collard could find

no record of a successful case of tracheotomy; in 1825 Bretonneau obtained the first cure. From 1851 to 1862 Fischer and Bricheteau collected a total of 107 operations, with one-quarter of that number of successful cases. In New York Jacobi had 50 recoveries in 213 operations. At the Hôpital Sainte-Eugénie, from 1855 to 1861, recoveries after operation were 1 in 6, and from 1862 to 1867, 1 in 4. At the Hôpital des Enfants, from 1866 to 1875 the recoveries after operation have been 1 in 3.7 cases.

Cochineal in Whooping Cough.

Dr. B. NICHOLSON writes to the London *Medical Times and Gazette*, April 21st, 1877, of an epidemic of whooping cough in New South Wales. The usual treatment, he goes on to say, was unsatisfactory, having but a small and limited influence over the disease. Under these circumstances I remembered that my shrewd old hospital sergeant had told me that two medical officers in the Royal Artillery had used a remedy which, in his experience, had been efficacious. This was cochineal. After questioning him again, I determined to give it a trial, though without much faith in its success. The result, however, was striking and decided. The whoop immediately lessened, or, after a short time, disappeared, and the course of the disease was shortened. So marked was the effect that neither error could be made nor doubt exist; and after the first trials, in which the medicine had been added to an ordinary expectorant mixture, I gave it alone in spirit and honey. The dose employed was a grain for every year of age, up to eight grains for adults (of whom I had two cases). During its administration I could observe no physiological effects.

On returning to Europe I had hoped to increase my experience, but, while in the army, only came across one case, and that accidentally. Some friends of mine in Cork went into lodgings, down the river, at a solitary house on the river bank. On visiting them the next day, they replied to my inquiries, that they liked the place much, but had neither of them slept, having been kept awake by the very loud, frequent, and most distressing cough and whoop of their landlord's two children. Being asked to see them, I found two boys of five and six or upward, healthy in constitution, but exceedingly pale, and was told that so severe were the evening and night paroxysms, that blood flowed from the mouth, nose, and ears. Some cochineal mixture was sent them, and on my next visit I was informed that on the night following its administration the cough and whoop had greatly lessened, the bleeding had ceased, and my friends had slept comfortably and undisturbed.

I hesitate to call this remedy an antidote, but it has a most prompt effect either in directly calming the spasmodic whoop, or on the poison producing it. In the third stage of the disease it is useless. One cannot, of course, expect that it will be of use in the complications themselves; yet I anticipate that it will, by its action on the disease, greatly prevent them, more especially those which are nervous or cerebral.

SURGERY.

I. GENERAL SURGERY.

On Shock After Severe Injuries and Operations.

An instructive article on shock, by Professor Von Nussbaum, is contained in the *Ærztliches Intelligenz-Blatt* for March 13th:—

When reflex paralysis of the heart occurs after severe laceration of peripheral nerves, the condition is defined as the shock of the injury; if with fatal result, we say that death has been caused by the shock of the injury, and necropsy is not expected to afford any explanatory phenomena. Formerly, deaths after the greater injuries and operations were attributed to shock pure and simple, in vastly greater numbers than in recent times; not because people are now more hardy than they were, but because the progress of science has enabled us to correct the errors which included deaths from shock and from other causes, now well known and distinguishable, in a common category. With Czerny, Dr. Nussbaum would refuse to attribute to shock all deaths from injuries, when during a moderate period satisfactory progress has been made, and no danger has been perceptible.

The muscular tissue of the heart performs its normal functions so long as endosmose and exosmose permit a normal nutrition of the muscle cells; and impaired function of this tissue implies a disturbance of the chemical and electrical processes of which it should be the seat.

As one cause of this disturbance, he instances the absorption of decomposing fluids in any tissue or part, especially in the peritoneal sac, the capacity of which for imbibition he discusses at length, quoting experiments by Wegner.

In cases of very rapid and complete absorption of septic peritoneal contents, death is doubtless caused by septicæmic collapse, though wrongly attributed to pure shock.

Then there is the occasional sudden death of old people after a day or two of satisfactory progress, often wrongly attributed to shock, but which he accounts for by loss of blood; considering, as he does, that hemorrhages, not immediately fatal, are often direct cause of death after a short interval necessary to the full production of the ill effect which comes on suddenly, though the patient may previously seem well. A similar sudden fatality attends severe railway accidents, and consequent amputation, in even young, healthy, strong men, and is wrongly imputed to pure shock, but, in Nussbaum's experience and that of Virchow, Bergmann, Czerny, Uffelmann, Wegner, Busch, Halm, and Von Buhl, may be safely attributed to fat embolism, the effects of which are seen in severe dyspnœa, œdema of lung, and sudden death. Such calamity has been observed even in cases of simple fracture of the leg. Then comes abstraction of heat, from sudden and extensive cooling of the abdominal viscera, which has been experimentally found by Wegner to be a competent fatal agent.

The Diagnostic Points of the Cachectic or Syphilitic Ulcer.

In a lecture on ulcers, in the *Lancet*, September 15th, 1877, Mr. FRANCIS MASON, of St. Thomas' Hospital, says :—

In cachectic ulcers I include those ulcers which seem to be associated with some constitutional disorder, such as scrofula, syphilis, or which arise from poisonous doses of mercury given to cure the latter disease. The affection commences as one or more hard lumps of variable size in the subcutaneous tissue, in which there is at first little pain. To these indurations the name of gummata has been applied, and they are said to be usually due to syphilitic taint. I doubt the necessary connection of these gummata with syphilis, inasmuch as we see so many cases in which we utterly fail to elicit a history of that disease.

These ulcers may appear on any part of the body, but I think the face and the lower limbs, near the knee, are, as far as my experience goes, the most frequent situations. The induration just referred to may remain quiet for a time; at length the superimposed skin acquires a dusky, bluish hue, and then, becoming thinner and thinner, at last gives way by ulceration, exposing a somewhat round or flattish slough, the edges of the wound being irregular and undermined. The pain is variable; sometimes it is intense, and is such as to prevent sleep at night.

To revert for one moment to the ulcer that is presumed to be characteristic of tertiary syphilis, I have often, as you are aware, been compelled to confess that I do not know how to describe such an ulcer, and so high an authority as Mr. Henry Lee admits his inability to speak positively on this point. He says that in tertiary syphilis "indolent tumors are formed in the skin, which very slowly desquamate or ulcerate, or become phagedenic." "Tertiary syphilis," he adds, "may probably affect every structure of the body, but the diseases thus produced so much resemble those that arise from other causes that, from the morbid changes alone, independently of the history of the case, it would often be almost impossible to recognize their true nature." Yet Sir James Paget is more positive on this point; for, referring to the more superficial tertiary syphilitic ulcers, he states that "their most frequent shapes are circular, annular, or crescentic or horseshoe-like. The annular shape," he continues, "in which a round or oval portion of healthy or scar-like skin is surrounded by a ring of ulceration, which often extends at its outer border while healing at its inner, is almost certainly characteristic of syphilitic disease."

On Septicæmia and its Rational Treatment.

In an address by Dr. WILLIAM ROBERTS, F.R.S., in the *British Medical Journal*, August 11th, 1877, he says :—

The notion that septicæmia is produced by bacteria, and the *rationale* of the antiseptic treatment which is based thereupon, is founded on the following series of considerations :—

1. It is known that decomposing animal substances—blood, muscle, and pus—develop, at an early stage of the process, a virulent poison, which, when injected into the body of an animal, produces symptoms similar to those of clinical septicæmia. This poison is evidently not itself an organism; it is soluble, or at least diffusible, in water, and it is capable, by appropriate means, of being separated from the decomposing liquid and its contained organisms. When thus isolated, it behaves like any other chemical poison; its effects are proportionate to the dose, and it has not the least power of self-multiplication in the body. To this substance Dr. Burdon-

Sanderson has given the appropriate name of pyrogen. It is the only known substance which produces a simple uncomplicated paroxysm of fever, beginning with a rigor, followed by a rise of temperature, and ending (if the dose be not too large) in defervescence and recovery.

2. We know further, from the evidence I have laid before you, that decomposition cannot take place without bacteria, and that bacteria are never produced spontaneously, but originate invariably from germs derived from the surrounding media. We are warranted by analogy in regarding pyrogen as the product of a special fermentation taking place in decomposing albuminoid mixtures, but we cannot name the particular organism nor the particular albuminoid compound which are mutually engaged in the process.

3. In the third place, we know that when a wound becomes unhealthy, as surgeons term it, the discharges become offensive (in other words, decomposed), and when examined under the microscope they are found to swarm with organisms resembling those found in all decomposing fluids. Meanwhile the patient becomes feverish, and suffers from the train of symptoms which we call septicæmia.

It is a natural inference that what takes place in decomposing blood or muscle in the laboratory takes place also in the serous discharges and dead tissues of the wound. These become infected from the surrounding air, or from the water used in the dressings, with septic organisms: on that follow decomposition and the production of the septic poison, or pyrogen; the poison is absorbed into the blood, and septicæmia ensues.

It was the distinguished merit of Lister to perceive that these considerations pointed to a means of preventing septicæmia. He argued that if you could prevent the access of septic organisms to the wound, or destroy them there, you would prevent decomposition, prevent the production of the septic poison, and thus obviate the danger of septicæmia. It is not within the scope of this address to describe the means by which Lister attained this object, still less to pass judgment on his practice, but I may be permitted to express my belief that the principle on which the treatment is founded is unassailable.

We should probably differ less about the antiseptic treatment if we took a broader view of its principle. We are apt to confound the principle of the treatment with Lister's method of carrying it out. The essence of the principle, it appears to me, is not exactly to protect the wound from the septic organisms, but *to defend the patient against the septic poison.* Defined in this way, I believe that every successful method of treating wounds will be found to conform to the antiseptic principle, and that herein lies the secret of the favorable results of modes of treatment which at first sight appear to be in contradiction to the antiseptic principle. Take, for example, the open method of treating wounds, which is sometimes compared in its results with Lister's method. What is this treatment but another way (only less ideally perfect than Lister's) of defending the patient against the septic poison? Because, if the surgeon succeeds in providing such free exit for the discharges that there is no lodgment of them in the wound, either they pass out of it before there is time for the production of the septic poison, or, if any be produced, it escapes so quickly that there is not enough absorbed to provoke an appreciable toxic effect.

Before we can understand the pathology of septicæmia we must have clear ideas on the relation of septic bacteria to our bodies. We see in our laboratories that dead animal tissues, when exposed to ordinary air or ordinary water, invariably breed septic organisms; in other words, contact of the septic germs with the dead tissues

never fails to produce successful septic inoculation. But it is quite otherwise with the same tissues when alive and forming part of our bodies. You cannot successfully inoculate the healthy tissues with septic bacteria. It has been proved over and over again that these organisms, when separated from the decomposing medium in which they grow, can be injected in quantity into the blood or tissues of a healthy animal, or applied to a sore on its skin, without producing the least effect. The healthy living tissues are an unsuitable soil for them; they cannot grow in it; or, to put it in another way, ordinary septic bacteria are not parasitic on the living tissues.

This fact is of fundamental importance in the discussion of the pathology of septicæmia. We have a familiar illustration of its truth in the now common practice of subcutaneous injection. Every time you make a subcutaneous injection you inject septic germs into the tissues. I had the curiosity to test this point with the morphia solution used for this purpose in the Manchester Infirmary. I injected five drops of this solution into four flasks of sterilized beef tea which had remained unchanged in my room for several months, taking care to avoid any other source of contamination. In forty-eight hours they were all in full putrefaction. But we know that no such effect follows when similar injections are made into the bodies of our patients.

It seems also probable that septic organisms enter constantly into our bodies with the air we breathe and the food we take; they pass, presumably, like any other minute particles, through the open mouths of the lymphatics and lacteals, and penetrate some distance into these channels; they certainly come in contact with the accidental cuts, sores, and scratches which so often bedeck our skins. Notwithstanding all this, our bodies do not decompose; indeed, if ordinary septic organisms could breed in the living tissues as they do in the same tissues when dead, animal life would be impossible, every living creature would infallibly perish. How these organisms are disposed of when they do enter our bodies accidentally, as it were, in the various ways I have suggested, we cannot say; we can only suppose that they must speedily perish, for we find no traces of them in the healthy blood and healthy tissues.

Bearing in mind, then, that ordinary septic organisms cannot breed in the living tissues, unless, at least, they are reduced to near the moribund state; bearing also in mind that there is a sharp distinction to be drawn between the septic poison and the organisms which generate it, we are in a better position to consider the course of events in a wound which leads on to septicæmia and pyæmia. What probably takes place is this: An unprotected wound receives infection from the septic organisms of the surrounding media. If the discharges are retained in the sinuosities of the wound, decomposition of them sets in, with production of the septic poison. This is absorbed into the blood, a toxic effect follows, and septicæmia is established. As this effect increases with the continuous absorption of the poison, the vitality of the system is progressively lowered, and especially the vitality of the tissues bordering the wound, which may be topically affected by the poison which percolates through them. These tissues at length become moribund or die outright: the septic organisms then invade and breed in them, more septic poison is produced and absorbed; the toxæmia becomes intense, embolic centres of inflammation and suppuration are formed, and the end comes. In all this history there is no necessity to assume, nor even a probability, that septic organisms invade, or, at least, multiply in, the blood. They may do so at the near approach of death, but scarcely before that period.

In the course of traumatic septicæmia there sometimes occurs an event of great importance which imparts a new feature to the disease; I mean *infectiveness*. How this arises is a matter of speculation. To me it appears probable that, under a certain concurrence of conditions in and about the wound, a modification takes place in the vital endowments of the septic organism, whereby it acquires a parasitic habit, which enables it to breed in tissues of degraded vitality, or even in the healthy tissues, and in this way to produce the infective endemic pyæmia which we sometimes witness in the wards of our large hospitals.

Before leaving the subject of septicæmia, I may allude to the possibility of wounds being infected with septic organisms from within. As a rare occurrence, I am inclined to think that this is possible, and that it may account for the occasional alleged infection of protected wounds. From an observation by Chauveau, it may be inferred that septic organisms, when injected directly into the blood, are able to survive for two or three days, although unable to breed there. It is conceivable that occasionally a septic germ, entering the body in some of the ways which have been suggested, may escape destruction and pass into the blood and lurk there a while, and finding by chance some dead tissue or liquid within its reach, may multiply therein and produce septic effects. Such a contingency, if it ever occur, must be very rare, and would not appreciably detract from the value of the antiseptic mode of dressing wounds.

Iodoform in Rodent Ulcers.

Dr. A. Ansell, of Corpus Christi, Texas, in the *American Bi-weekly*, for June 9th, reports the following cases, to substantiate the value of this drug in certain ulcers:—

Case 1.—Francisca C., aged sixty-five years; female; robust, short stature; no particular employment; history, syphilitic; has had a large rodent ulcer on anterior aspect of right leg for over seventeen months. Remedies *ad infinitum* had been employed, without any relief. I washed the ulcer with a solution of chloride of zinc, and then dressed it with dry iodoform. The agent I packed in intimately with a wooden spatula; left no point uncovered. This was kept on with dry lint and a spiral bandage from the ankle to the knee; reapplied every third day. Result, perfect recovery.

Case 2.—Samuel T., aged thirty years; medium size, fairly robust; printer by occupation; intemperate; syphilitic. He had rodent ulcers on both legs, of long existence. He had never been able to procure a remedy for the ailment, so that he could follow his occupation. The same treatment was adopted. Result, recovery.

Case 3.—Annie D., aged eighteen years; well developed; catamenia irregular; occupation, housemaid; scrofulous. Had rodent ulcers on both legs of many years' standing. They had been healed once or twice, and broke out again. The same treatment was pursued, with the difference that elastic stockings were applied instead of a roller. Recovery.

Case 4.—Miss McC., aged sixty-three years; of spare habit; no occupation; scrofulous. Had a rodent ulcer on left leg; not extensive. Treatment, dry iodoform packed in, with an elastic stocking applied from ankle to knee. Result, recovery.

Case 5.—Antonio G., aged forty years; well developed; occupation, herdsman; syphilis; phagedenic chancre of considerable extent. Same treatment, with recovery.

Except in the last case, there were no internal remedies used whatever. The period which patients were under treatment varied materially. The shortest (Case 4) was five weeks; the longest (Case 3) was tedious, in consequence of the patient being neglectful and disobedient; it covered a period of nearly three months. On the whole, the agent gratified me very much in destroying the gangrenous action set up in these individuals, besides preventing that noxious odor which accompanies this form of ulcer. I have found nothing which cleanses the ulcer more rapidly, or that sets up healthy granular action more speedily, than iodoform applied dry and thoroughly packed.

Epithelioma of Tongue.

In the Hospital Records of Roosevelt Hospital, New York, in the *Archives of Clinical Surgery*, July 15th, 1877, a case of this kind occurs in the service of Dr. H. B. Sands. The House Surgeon, Dr. J. J. CRONE, reports it as follows:—

T. F., aged fifty-one; native of Ireland; married; clerk; was admitted to the hospital October 10th, 1876. About twelve months previous to this time, the patient noticed a little pimple in median line of his tongue, about one and a half inches from its tip; it gradually increased in size, and became elevated above the rest of the tongue. Never gave him any pain, but a little soreness.

On admission, there was an epithelioma situated on the dorsum of the tongue, about half an inch from its tip, which was about two inches in antero-posterior and one inch in transverse diameter, and was quite hard to the touch. There was enlarged gland under the left angle of the lower jaw.

Treatment.—On October 20th the patient was etherized, and the tongue removed by Dr. Sands, assisted by Drs. Mason and Peters. The mouth being held open by a gag, and the cheek drawn back by a retractor, a strong suture was passed transversely through the tongue about an inch from its tip, and the tongue drawn well out of the mouth. A looped ligature was then passed transversely through the organ under the tumor, about midway between its anterior and posterior margins, by means of which the platinum wire of the galvano-cautery was drawn through the tongue, and looped over its dorsum posterior to the tumor, and just in front of the circumvallate papillæ. When this was tightened, the battery was put in action, and the wire slowly burned its way through. The remaining part of the tongue not cut through was then engaged in the loop of wire by carrying it beneath the anterior extremity of the tongue, and posteriorly behind the tumor at point of section. This then cut through in the same manner, the whole operation taking about twenty minutes, it being the design of the operator to cut as slowly as possible, that there might be little danger of subsequent hemorrhage. The only hemorrhage that occurred came from the punctures made by the needles, and was very slight. The whole of the tongue anterior to the circumvallate papillæ above, and the frænum below, was removed.

The patient passed a comfortable night, and did not seem to suffer any severe pain. The following day his pulse and temperature rose slightly, and as he took no nourishment, he was ordered an enema of half a pint of milk. A solution of salicylic acid (1 part to 500) was used for a mouth wash.

October 24th. Pulse normal, and temperature has not been above 100½°. The patient takes but little nourishment by the mouth, and the injections of milk are still kept up. Slough is coming away from tongue.

October 26th. Base of tongue is clearing up; patient feels better and can swallow

better than since the operation, but can take very little nourishment in that way. Retains an injection of milk, eggs and brandy to bulk of a pint and a half. Complains of feeling thirsty, but not of hunger. Since the operation, he has not taken altogether half a pint of milk by the mouth.

On October 27th he took his milk and brandy by the mouth, swallowing with much difficulty. The slough has nearly all come away. On the 29th he sat up for a couple of hours. Is much improved, and can talk quite plainly.

From this on, the improvement was steady and rapid, and he was discharged on November 14th, at which time the base of the tongue had almost entirely healed.

Erysipelas.

Dr. A. A. BONDURANT, of Charleston, Mo., sends to the Louisville *Medical News*, June 16th, 1877, remarks on ten cases of erysipelas. He reports:—

Several cases of erysipelas have occurred in my practice, during the last two months, of such a character as to give me a great deal of trouble.

CASE 1.—Farmer, aged about twenty years; temperate; had been exposed to cold and wet. Upon visiting him, found both cheeks and forehead greatly swollen. He had been using the old domestic remedy, "copperas and buttermilk." I had the bowels kept open by the use of Epsom salts, gave fifteen drops of muriated tincture of iron every six hours, ten grains chlorate of potash every four hours, and broken doses of quinine, which constituted the internal treatment. The local treatment consisted of a saturated solution of acetate of lead. The patient was convalescent in five days, and was soon entirely well.

CASE 2.—Farmer, aged fifty-four years. When I visited him, he seemed to be laboring under an attack of influenza. He complained of sore throat, and on examination I found considerable inflammation of the pharynx and tonsils, left parotid gland enlarged, and pulse 108. Gave mild chloride of mercury and extract of colocynth, ten grains of the former and six of the latter, divided into three powders; one powder every two hours. Gave muriate of ammonia and quinine; also chlorate of potash, to take and use as gargle.

Called the next day and found him no better in any respect, and suffering with an intense headache. Gave bromide of potash to relieve the head symptoms; directed the use of the muriated tincture of iron, ten drops every three hours; also the iron was applied to the fauces occasionally by means of an ordinary mop.

The next day the parotid and cervical glands were still enlarging on both sides, tonsils red and swollen, breathing somewhat difficult, and left cheek a little painful to the touch. I increased the iron to fifteen drops every three hours, had warm poultices applied to the painful parts, and prescribed for the enlarged glands a liniment of chloroform, tincture of aconite, and tincture of opium, each one ounce; aqua ammonia, half ounce; and continued the other medicines, except the mercury.

The next day erysipelas had made its appearance on the nose, and gradually extended over the face, head, and neck. The pain in the head disappeared immediately after the external appearance of the erysipelas. I applied tincture of iodine and alcohol in equal quantities for two days. The swelling was great, and seeing no improvement, I tried collodion, also acetate of lead, adding to the internal treatment hydrastis and aconite. The eyes were closed, and abscesses formed on the cheeks; when opened they discharged considerable pus. He never had any appetite while sick.

About the tenth day of his illness patient complained of sick stomach, excessive thirst, considerable tympanites, vomited profusely, and in twenty-four hours died.

My opinion is that erysipelas of the bowels destroyed my patient.

Case 3.—Aged forty-five years; was attacked like Case 2. I saw him five days after the attack, and one day after the erysipelas had made its appearance on the nose, as in the preceding case. He informed me that he had suffered dreadfully with his head until the erysipelas broke out, at which time his head ceased to pain him.

I treated him as I did Case 2 up to the sixth day of my visits, excepting the mercury. At the sixth day I applied the mush poultice all over his head and face. The swelling rapidly disappeared, until he was enabled to see distinctly with both eyes. I thought then if I had applied the poultice at an earlier date, perhaps I could have saved my patient; but his lungs had become involved, and presented exactly the appearance of pneumonia in its third stage when it proves fatal. My patient died two days later, making an illness of thirteen days.

Case 4.—Farmer, twenty-four years of age; had been treated by another physician some days, when I was called in. Patient informed me that his physician had been giving him calomel and quinine all the time. The erysipelas made its appearance the day I was called in. The treatment consisted of Epsom salts, muriated tincture of iron, hydrastis, muriate of ammonia, and chlorate of potash, with an opiate occasionally, to promote quietude. Applied linseed oil and carbolic acid to the affected parts, which consisted of the face and scalp, as did the others. He was unable to swallow scarcely anything for several days, and was unconscious most of the time, unless his mind was employed by the conversation of some one. He was almost deaf during the height of his attack. In three weeks he was convalescent, and is now well.

Case 5.—Aged thirty years, married lady, mother of three children, of nervous temperament; was taken with light chill; parotid and cervical glands enlarged, as in preceding cases. She suffered from a most violent headache for five days. Complete anorexia was a feature of this case till convalescence; also of the others, but not to so great an extent. I put her upon a mild course of mercury, muriate of ammonia and quinine; gave pulsatilla, to relieve cephalalgia, which acted like a charm. She complained of rigors for three or four days.

I diagnosed it a case of erysipelas in its incipiency at my first visit. Her breath was the most disagreeable I ever inhaled. After the second day I abandoned the use of mercury, and began the use of muriated tincture of iron in large quantities. On the fifth day I applied the poultice freely, and as warm as she could bear it. The sixth day her fever had cooled, and the swelling had considerably disappeared from the enlarged glands. The symptoms were so flattering, I should have discharged the case had I not been called in the same neighborhood the following day. I entered the room, glanced at her, and asked how long her nose had been sore. She replied that her nose was not sore. I placed my finger upon a red spot on her nose, and it gave her pain. I then ceased to use the iron, and began local treatment with mercurial ointment, continuing the other medicines. In two days the entire face, neck and scalp were involved. The swelling was great, but in three days it began to disappear, after which time she was soon able to be up, though she gained strength very slowly.

Case 6.—Aged thirty-five, a lady, the mother of several children; had been in delicate health for some time. She was attacked like the preceding cases; throat

and base of tongue were more affected than either case prior to hers. Treatment consisted of Epsom salts, muriated tincture of iron, hydrastis, and aconite, until her throat and tongue became so much involved she could not swallow anything. At the sixth day glossitis began suddenly and unexpectedly, and in two hours she was unable to speak understandingly; the tongue soon protruded from the mouth. I used glycerine, tannin, and muriated tincture of iron, applied by means of a mop.

The next day I called in my friend Dr. T. Vernon. We found patient no better. At his suggestion we added to my treatment sulphate of zinc and acetate of lead, to be applied alternately with the other, making an application every two hours. In twenty-four hours she began to improve. The erysipelas made its appearance on one side of the face only, and was very slight. Patient recovered,

CASE 7.—Aged twenty-seven, farmer; previous health good; habits good; was attacked similarly to the preceding case, and put on the same treatment. He continued about the same until the tenth day, when his tongue began to swell rapidly, and so continued till it protruded from the mouth, and there remained for six days without any perceivable change. I used two preparations locally: one consisted of the acetate of lead and sulphate of zinc, each ten grains to the ounce; the other of muriated tincture of iron and fluid extract of wild indigo, two parts of the former to one of the latter. Applied them alternately, making an application to the tongue and fauces every two hours.

In six days the tongue had completely scabbed over, then began to peel off, and the swelling began to diminish. At this time I began to give iron and the sulpho-carbolate of soda, the latter being suggested to me by my friend Dr. John Moorman. Erysipelas made its appearance the following day near the right ear, and continued over the face and head; but in four days it began to subside, and my patient slowly recovered.

CASE 8.—A boy, nine years of age; attacked like the others, but in a milder degree. Internal treatment same as preceding case, except the sulpho-carbolate of soda. The local treatment consisted of muriated tincture of iron to the inflamed tonsils and acetate of lead to the erysipelas, which involved only the nose and one cheek. The erysipelas disappeared in two or three days, and the boy would have been up, but at that time an abscess made its appearance in the perineum, which gave him a vast amount of suffering. I opened the abscess ten days later, at which time it discharged considerable pus, giving the patient immediate relief, and he soon recovered.

CASE 9.—A boy, eight years of age; had been visited by my friend Dr. Vernon a week prior to my visit. I was called in the day erysipelas made its appearance. I soon ascertained that he had gone through the same course of symptoms as the other cases, with an additional trouble of urinating, and also very scanty. As a diuretic I gave bicarbonate of potash, which acted like a charm. The medicines used in this case were three small doses of calomel the first day, then sulpho-carbolate of soda, quinine, iron, and hydrastis; locally, glycerine and carbolic acid. The patient recovered in two weeks from the time when visited by Dr. Vernon.

CASE. 10.—Aged thirty-five years, farmer; sent to me for medicine, with the statement that he was costive, glands of neck swollen, fever, and intense headache. I prescribed for him ten grains of mild chloride of mercury and five of rhubarb, divided into two powders, one at six and the other at nine o'clock P. M.; also ten grains sulpho-carbolate of soda every two hours. Supposing it to be a case of erysipelas, I sent him mercurial ointment, with directions to use it if erysipelas

broke out. He sent for me the second day after I sent the medicine. I found as bad a looking case of erysipelas as I had ever seen, considering the time he had been sick, except his throat and tongue were not involved. Continued the sulpho-carbolate of soda and mercurial ointment; added chlorate of potash, with a view to avoid ptyalism by the ointment; also gave digitalis as an arterial sedative.

In three days my patient was rapidly improving, and was soon riding about; but now, two weeks since the attack, has a large abscess in the left parotid gland. This is the only case that did not take iron, and the second that used the sulpho-carbolate soda from the beginning, and the only case that used the mercurial ointment from the first of the attack. I was better satisfied with the progress of this case than any other. In every case the erysipelas began to subside first at the point where it began, and the last place attacked was the last to get well.

Were I to pass through another epidemic of erysipelas, I would give the sulpho-carbolate of soda a fair and impartial trial as an antiseptic. Muriated tincture of iron has not proved a sovereign remedy in my hands.

Treatment of Boils by Sulphide of Calcium.

Dr. T. Curtis Smith, of Middleport, Ohio, sends his treatment of this affection to the *Archives of Clinical Surgery*, April 15th, 1877:—

Case 1.—R. S. W., aged twenty-four, lawyer, nervous temperament, of general good health, spare habit, temperate, costive habit, came to me, complaining of a large boil on his right thigh, with the statement that he "had not been clear of boils for several months; as soon as one commenced to recede or suppurate, one or more new ones would commence to make their appearance, and every large boil is encircled with a crop of small ones." He thought that each one would be the last, but had now become discouraged in waiting for the last one to leave him. As he was in average health in all other respects, I at once prescribed sulphide of calcium, three grains every three hours. The boil now on his thigh was about three and a half inches in circumference at its base, very painful, and throbbing at every pulsation. The boils preceding this one had been very slow in development, and suppurated but little.

On the second day after commencing the treatment the boil softened at its point, and on the third day discharged pus profusely. A boil that had commenced in another locality began on the second day to disappear, and soon no appearance of it could be discovered. The large suppurating boil was not encircled by a crop of small ones, as had been its predecessors. From that day to this (eighteen months) he has not been troubled with any furunculous eruption.

Case 2.—Mrs. S., aged sixty-eight, of nervo-bilious temperament, while recovering from a long attack of serious nervous disease, became afflicted with successive crops of boils. They appeared on the neck, shoulders, arms, and thighs, and were often located in such a manner that she could not lie in any position without great discomfort. Like the former case, as soon as one crop commenced to recede a new crop would appear, and none of them suppurated more than a few drops of bloody pus; some none at all. The general tonic course she was on was continued, and the sulphide of calcium, three grains, given every two to three hours.

By the next day the boils were less painful. The large ones, several in number, commenced to discharge pus very freely on the second day of this treatment, and rapidly disappeared. Several small ones, the size of a hazelnut to that of a small chestnut, commenced to wilt on the second day of the treatment, and in four to five

days nothing was left to mark their former existence except a purple spot. No new crop of furuncles followed, and her gain in general health was much more rapid than while annoyed by the boils. This case I treated in February, 1875.

CASE 3.—Mr. B., a steamboat captain, a large, portly man, sanguineous temperament, came to me a short time since with a very large boil on the anterior face of the right thigh, stating that he had not been entirely clear of a large boil in some locality for six months; that he had tried various remedies without effect in preventing new ones from coming out. His general health was excellent, and nothing discoverable at fault except these boils. He was ordered sulphide of calcium, five grains every three to four hours.

Three days later he reported that the boil was becoming soft, and would soon burst. He also stated that this one had advanced more, in the last three days, toward maturation, than any of the former boils had in two weeks. In this case, as in the others, the boils had discharged nothing but a few drops of bloody pus, were very slow in developing, and also in the retrograde process, one boil sometimes continuing for four to five weeks. The one now on hand suppurated freely on the fifth night, after which it rapidly disappeared. No new ones put in an appearance. No disturbance of the general health or appetite was at any time noticed while taking this agent; on the contrary, patients have generally spoken of feeling better while taking it than before commencing its use.

My friend, Dr. E. C. Fisher, at my suggestion, put a case of slow hard "blood boils" on this remedy, several of which existed on the face, were hard, red, oval tumors, with no sign of suppuration in them. In three to four days they showed signs of softening and of commencing absorption. In a very few days more they disappeared without suppuration.

I have found this agent equally beneficial in the slow form of scrofulous abscess, shortening the time of its existence very materially. It has also done me very good service in cases of infantile eczema, and some chronic, scaly skin diseases. As this is purely a clinical paper, I will not offer here any theory as to its mode of action.

(*a*) SURGERY OF THE VASCULAR SYSTEM.

Rapid Cure of Double Popliteal Aneurism.

The following instructive case is reported in the *Lancet*, June 30th, 1877, by Dr. ALEXANDER PATTERSON, of Glasgow:—

R. W., aged twenty-six, was admitted to the Western Infirmary on the 10th of January, 1877. The patient is a fair-complexioned, healthy-looking man, of low stature, filling the position of inspector of cloth in a weaving factory, where he stands all day at his duty. Patient states that three years and a half ago he suffered from what he calls a pretty smart attack of rheumatism, not so severe, however, as to preclude him from following his employment. When his stomach was disordered he was annoyed by palpitation. He was unaccustomed to active exercise, but in the beginning of May last he played for about half an hour at cricket, when he received a blow on the front of the left ankle joint, which, he says, has since been the cause of much trouble. The foot became swollen and painful, yet not to such an extent as to throw him off work. Ten weeks ago, when the ankle had ceased giving him

annoyance, he felt, while at work, a stiffness in the left knee-joint, and experienced slight pain on stooping. On examining the knee at night, he detected a small soft swelling in the left popliteal space, in which he felt a slight pulsation. To this he gave little attention, attributing it to a kind of rheumatic pain excited by the injured ankle. About a fortnight afterward, on casually examining the right ham, he discovered a swelling similar to that in the left, but slightly smaller, in which also he detected pulsation on pressure with the finger. Shortly after this time he complained of a feeling of numbness in the right foot, which in a week or two became considerably swollen, and had a hot, uncomfortable sensation. During this period both swellings had rapidly increased in size, and the pulsation was becoming more and more marked, accompanied by pain, as if a red-hot cinder were present in each popliteal space. The swelling in the right foot after some time extended upward toward the knee, causing a heavy, dragging pain, as if a weight were attached to the limb. During all this time the left ankle gave him no trouble, and the pain in the left limb was inconsiderable compared with that in the right.

On examination, a well-marked aneurism was found to exist in each popliteal space; that in the right was about the size of a goose egg, and easily emptied of its contents; the left was not quite so large, and gave one the idea that the sac walls were of greater density. All the usual signs of aneurism were present in both tumors. A double murmur was audible in the right, and a single sound could be heard in the left; heart found to be pretty normal, if anything a slight enlargement of cardiac area, and a little irregularity of beat existed; no evidence of aortic aneurism detected; general health good.

Treatment.—On the 12th of January (two days after admission) the left leg was firmly flexed, and kept so by bandaging. On the 13th, digital pressure was commenced at 11 A.M., by compressing the right femoral artery in Scarpa's space, and kept up without intermission until 11 P.M., when pulsation was found to have entirely ceased, and the tumor to be much lessened in size. On January 15th, at the visit hour, the swelling was not much larger than a pigeon's egg, being now hard and solid. At 2 P.M.; digital compression was applied to the left femoral, and kept up continuously until 11 P.M., that is to say, for nine hours. At the visit hour next morning (the 16th) pulsation was gone, the tumor solid, and much diminished in size.

No great pain was experienced during the treatment, and the collateral circulation became quickly established. Patient complained of a tingling sensation in the leg during the application of the fingers, but no actual pain was felt except at the time the hands were changed. Oxide of zinc powder was dusted on the skin over Scarpa's space during the treatment, to prevent abrasion of the skin, and it answered the end effectually. In both legs the posterior tibial artery was felt beating immediately before the compression was started, but on the solidification of the tumor the artery could not with certainty be felt in either foot. The temperature remained alike in both legs, and was at first only slightly below the normal standard. As before stated, pain was complained of only on the gentlemen changing places, but toward night he ceased to notice the change, and was observed to become drowsy.

The order given was to "stop the pulsation in the aneurism completely, and keep it so," and this order was literally carried out. The gentlemen who kindly volunteered their aid in this case, found that from fifteen to twenty minutes was as long a period as any one of them could effectually compress the artery. Two at least were always at the bedside, and while one pressed the artery, his companion kept

his open hand over the sac. In both cases the knee was slightly flexed, and resting on a pillow, and each compressor stood during his turn. From the practice obtained in the right limb, the students found that they were able to manage the vessel with more ease in the left thigh.

January 23d, 1877. Since date of cure both knees have been kept bent, as a precautionary measure, but to-day the bandages were removed. The tumor in the right ham gives the feel of a firm fibrous tumor, about the size of a walnut; that in the left being a little larger and scarcely so dense. The posterior tibial arteries can barely be felt pulsating, yet the temperature is normal and alike in both feet. A small vessel, much enlarged, passes over the outer aspect of each tumor, and one also over the front of the patella.

February 23d. Dismissed, and warned not to take long walks in the meantime.

Obstinate Epistaxis Controlled by Compression of the Superior Coronary Artery and its Branches.

Dr. E. E. Beeman, of Wakeman, Ohio, reports in the *American Medico Bi-weekly*, July 7th, 1877, the following case:—

On the night of December 19th my partner, Dr. Stewart, was called to attend Mr. W., residing two miles west of town. He found him bleeding freely from the right nostril, the hemorrhage having set in without any known exciting cause six hours previous, and had continued without intermission. The patient was a large, plethoric man of between fifty and sixty years of age, and had never been subject of a previous attack. Dr. S., who, simultaneously with the call at Mr. W.'s had been summoned to attend a case of labor some three miles in another direction, plugged the posterior nares at once with lint, wet in a solution of ferri persulphate, also introducing it into the nostril below, and as the hemorrhage seemed to be the time entirely controlled, and his presence in another direction being immediately necessary, he went away, requesting that if the bleeding recurred he should be called. Within a short time the hemorrhage again set in, and I was summoned. The plugging my arrival I found the blood dropping rapidly from the anterior nares. The plugging posteriorly having been so thoroughly accomplished as to entirely prevent its escape in that direction, I cleaned out the lint from the nostril, not, however, disturbing the plugging of the posterior nostril, and introduced more lint wet with the oil erigeron cand. (a remedy in such cases in which I had previously placed the utmost reliance, considering it far more efficacious than the iron). But, although not much blood escaped externally, the continuation of the hemorrhage was evident, the nostril became very much distended and painful, so much so that the patient complained bitterly, saying he would much prefer to have the bleeding left to itself than to be necessitated to the continuation of the pressure. I then removed the lint I had pushed into the nostril and resorted to the persulphate of iron again, but with no more satisfactory results, indeed, the bleeding growing more and more profuse. After waiting half an hour, I removed the lint for the third time, and making a compress of old linen sufficiently large to fill the space between the jaw and lip, I brought the lip well down over it, so that it would act as its own compressor, and had the satisfaction of seeing the hemorrhage immediately cease. I directed the patient to retain it for some hours, but as there was no recurrence of the trouble he removed it within two or three hours, since which time he has had no return.

Case of Amyloid Degeneration of Liver and Kidneys, with Caries of Lumbar Vertebræ.

Dr. W. T. BELFIELD, Assistant Physician of Cook County Hospital, reports the following case to the Chicago *Medical Times and Examiner*, August, 1877:—

Mary L., aged three years, was admitted to the hospital May 1st, 1875. For some reason which can be only conjectured, neither her previous nor her subsequent history was recorded; hence our only information in regard to her is gleaned from the traditions handed down to the present internes, and from the personal knowledge of the nurse. Unsatisfactory as such a history necessarily is, the rarity of the case is, perhaps, sufficient apology for its presentation.

The child had been always delicate; had never walked, the inability being due, apparently, not to malformation, but to a lack of strength. On admission she was quite emaciated; skin cool, very white and transparent; appetite excellent; usually had several clay-colored stools daily; from a small opening below Poupart's ligament, on the right side, there was a slight but constant purulent discharge; there was evidently considerable liquid in the peritoneal sac. She was so weak as to be unable even to feed herself; but her mental faculties were quite acute, and she took the usual delight in the ownership of dolls and other toys.

During the first year her history was simply a gradual aggravation of the ascites and of the diarrhœa, her stools finally averaging from twelve to twenty daily, but retaining their peculiar clay color and semi-solid consistence. Some enlargement of the liver became evident. During all this time, notwithstanding the unavoidable lack of exercise, society and amusement, her general condition did not decline; her appetite became voracious, and, except during periodical exacerbations of the diarrhœa, she complained of no pain. She was serene, contented, almost happy. The late Professor Freer, upon taking charge of the ward in which she lay, pronounced the case one of amyloid degeneration of the liver.

About a year ago, a small tumor appeared and burst in the gluteal region of the right side. From this opening there was a constant purulent discharge. About six months ago, the abdomen being then greatly distended, there became apparent œdema of the feet, gradually extending upward to the knees. From this time the little patient declined visibly in health, and finally, without the development of additional symptoms, died May 2d, 1877.

A post-mortem examination revealed the presence of about five quarts of clear, yellowish liquid in the peritoneal sac; a fibrillated exudate on the superior surface of the liver, and among the folds of intestine. The liver was much enlarged, weighing fifty-seven ounces; was very smooth, dense and elastic; the edges were rounded; the cut surface was of waxy appearance, dry, and almost bloodless; the lobules were plainly mapped out by white boundary lines; a thin section was quite translucent; the addition of iodine in solution produced a mahogany-red color.

The kidneys, also, were enlarged, smooth and dense, weighing three ounces each. Section showed the enlargement to be due chiefly to thickening of the cortical portion, which also presented an unusual pallor. Treatment with iodine caused the Malpighian bodies and vasa recta to assume the same mahogany-red color.

There were also extensive caries of the lumbar vertebræ, from which a sinus extended to the opening on the hip.

Microscopic examination was made under the supervision of Dr. Danforth, pathologist to the hospital. Sections were cut by hand, soaked for a few minutes in glycerine and acetic acid, and then stained with a solution of iodine in iodide of

potassium and water. In the liver, the calibre of the inter-lobular vessels appeared somewhat diminished; the liver cells were swollen, of rounded, regular outline, and devoid of nuclei; in many cases there seemed to have been obliteration of the inter-cellular substance and coalescence of cells; the entire lobule, excepting only the scanty connective tissue, presented the mahogany-red color. There was no evidence of fatty degeneration.

In the kidney, the vascular coils of many Malpighian bodies, the corresponding vasa afferentia, and some of the vasa recta, exhibited the iodine staining. Some of the Malpighian bodies, and many vasa recta, showed no change of color.

(*b*) SURGERY OF THE NERVOUS SYSTEM.

Traumatic Neuritis Involving the Brachial Plexus.

Dr. CHARLES K. MILLS reports the following case to the *Medical Times*, of Philadelphia, September 1st, 1877:—

J. D., aged thirty-two, two years before coming under observation, had his left arm caught in a belt and was carried several feet from the floor. The arm was broken about the wrist, the middle of the forearm, and near the shoulder. It was also badly twisted, and since the accident had been entirely helpless. He could not move the arm, forearm, or hand in any direction. On attempting motion pain and violent tremor would ensue. He carried the hand in a sling. The limb was somewhat wasted, but did not present the extreme atrophy which is noticed in some cases of spinal or nerve injury.

From an irregular line around the arm, about two inches above the elbow, a district of highly-marked hyperæsthesia extended upward, including, when he was first seen, the outer part of the shoulder, and afterward spreading until it embraced the left breast, side, and back, in the scapular and suprascapular regions. He had constantly considerable pain in the hyperæsthetic area, and touching or handling him gently would cause extreme suffering, and bring about fibrillary twitchings in the thoracic muscles. The pain and hyperæsthesia usually got much worse in the evening and during the night.

From the line of demarcation, two inches above the elbow, downward the limb was anæsthetic. Analgesia, or loss of the sensation of pain, seemed complete. Compass points could be jabbed into his forearm and hand with impunity; and to the same parts a strong faradic current could be applied without causing the patient any pain or inconvenience, unless the application was so made as to jar the entire limb. Electro-contractility was good. The skin was pale and smooth-looking.

The third and fourth dorsal vertebræ became tender to pressure while the case was under notice; and when at its worst, slight hyperæsthesia was present on the *right* side of the spinal column, in the scapular region.

This patient had been subject to epileptic seizures for twelve years. They were supposed to have originated from sunstroke. Since the accident to his arm they had been less frequent and less severe. He had never had any form of venereal disease.

The treatment pursued in this case has extended over nearly ten months, and will be briefly summarized. Bromide of potassium was given, mainly with the view of controlling the epileptic attacks. Iodide of potassium and the bichloride of mercury

were administered for several weeks. At one period he was blistered over the dorsal vertebræ, and later the actual cautery was repeatedly applied. Morphia was sometimes used by the mouth or hypodermically. Galvanization of the hyperæsthetic district was employed. A weak current, usually from about five cells, was employed, applying one rheophore, generally the cathode, to the cervical spine, and the other to the affected region. The application nearly always relieved temporarily the pain and hyperæsthesia.

Six months after coming under treatment the patient was, on the whole, rather worse than when first seen, although he had several times temporarily improved. He was then ordered to use, by inunction upon the arm and shoulder, about a drachm daily of a prescription containing equal parts of ointments of mercury, of iodine, and of belladonna. Four weeks after beginning this treatment the pain left his arm and side, the hyperæsthesia and anæsthesia also rapidly disappearing. He steadily improved, and has now, nearly three years after the accident, made a complete recovery from the neuritis. The motions of the shoulder, arm, forearm, and hand, have all returned, and under faradization the muscles are all rapidly regaining tone and strength. A few days after the improvement set in, his mouth began to show signs of mercurialization; but the inunction was continued until well-marked salivation was produced. Chlorate of potassium and cinchona were subsequently employed to relieve the ptyalism.

Remarks.—In this remarkable case some of the great branches of the brachial plexus were probably severely injured, by torsion, tearing, or pressure, at the time of the accident. The neuritis which was set up seemed to have radiated to nearly all the nerves of the plexus, as well as to other nerves, and involved, to a limited extent, the spinal cord. The neuritic process even appeared at one time to have extended across the spinal cord to the right side. The inflammatory condition of numerous nerves and their branches was doubtless the cause of the pain and hyperæsthesia, while the total anæsthesia below can be explained on the view of Niemeyer, that inflamed nerves are bad conductors, and hence convey peripheral impressions incompletely, or not at all, to the brain. Whether the cure was spontaneous, or the result of the treatment by inunction, the reader may judge for himself. For myself, I believe that it was in great part, at least, due to the treatment. According to Erb, the sovereign remedy for all the more chronic forms of neuritis is the galvanic current; and I have myself found it of great service, both as a palliative and curative agency. In the case just reported, galvanization, with a weak current, would relieve the pain and hyperæsthesia more effectually and for a longer time than any other remedy; but it was difficult to carry out the electric treatment with absolute regularity, and to include every portion of the wide neuritic area in each application.

Tetanus.

In the Detroit *Medica Journal* for June, 1877, Dr. N. F. Brown writes:—

This is a disease which has perhaps baffled the skill of the learned of the profession, in regard to its pathology and treatment, as much as any in the catalogue of diseases.

Tetanus is defined as a functional affection of the muscular system, in which there is continued rigidity of the muscles, accompanied with spasms, generally of a tonic character. Tetanus frequently arises from wounds or injuries, when it is designated as traumatic tetanus; occurring otherwise, it is termed idiopathic tetanus.

The important varieties of this disease are the traumatic and idiopathic. The latter variety is seldom seen.

Tetanus occurs in all ages, from early infancy to old age, but authors generally agree that it attacks the younger members of the community, and that it is usually of the traumatic character.

Climate seems to exert a decided influence upon the disease, cases occurring much more frequently in warm and tropical regions than in temperate or cold latitudes. The causes of the disease are numerous, but prominent among these are wounds, particularly lacerated wounds; and it is worthy of notice that tetanus frequently results from a very slight wound, and that extensive lacerations are not so apt to be followed by the disease. All constitutions are susceptible to the disease, but generally the subject is one of debility, yet in hot climates a robust laborer is as apt to have tetanus from a slight wound as his weaker companion.

The diagnosis is generally easily made, but the physiological effects of strychnia may be mistaken for tetanus.

When we look at a case of tetanus, we are astounded at the unknown morbific agent or agents which produce this terrible condition; and as post-mortem examinations have thrown but little light on its pathology, we are compelled to treat the disease empirically. As I am not able to add anything to the literature of this subject, I will report upon a case of the traumatic variety which came under my care a few months since.

In the evening of the 28th of last September, I was called to see a German; married; thirty-six years of age; light, wiry frame, nervous temperament, and exceedingly irritable temper.

This man, although a "hard drinker," was industrious, and could work at anything from "roustabout" to blacksmithing and carriage-making, and while thus employed, tramped upon a rusty nail, which passed through the sole of the shoe and entered the great toe, passing through close to the bone. After removing the nail, he bathed the toe with cold water, and as the wound was not painful, continued work, and after one day the discharge ceased and the wound closed up; but on the fourth day it became painful and slightly inflamed, and on the fifth day he complained of aching in the lower extremities, and "stiffness" in the neck and back.

In the evening, when I called, I found him sitting in a chair, perfectly rational, but quite sensitive and anxious; complained some of sore throat, but the muscles of the face were not yet affected; movements of the body, however, caused great pain in the posterior muscles of the neck and back.

I gave chloral and bromide of potassium every hour, in doses of twenty grains, but he was not able to take more than three doses, as trismus took place shortly after taking the third dose. In the morning I found him in true tetanic spasm; all the muscles of the trunk and extremities seemed to be involved, and the body inclined to opisthotonos, the rigidity of the muscles being so severe that the body could have been wholly raised by lifting at either extremity. Deglutition being almost impossible, as even the contemplation of food or drink would induce severe spasm, I gave one grain of sulphate of morphia hypodermically, which had the effect of decidedly ameliorating the suffering of the patient.

He regained the use of his arms for a short time, which, previous to this, were immovable. During this time of relief, considerable nourishment was taken in a liquid form, and the patient became quite cheerful, and expected to recover. He also took large doses of quinine, bromide of potassium, and belladonna during this

time, but after about six hours of partial relief the spasms became more frequent and severe, and swallowing being impossible, I again gave morphia subcutaneously, but without decided effect.

The mind of the patient continued perfectly clear, but the suffering was indescribable, and continued till the fifth day, when there was considerable diminution of pain and spasm, lasting about one hour, when he gave a terrible shriek, the body assuming the position of emprosthotonos, which continued a few moments, and death came to the relief of the sufferer.

A Case of Traumatic Tetanus Treated by Profuse Sweating—Cure.

The subjoined case is given in the *British Medical Journal*, October 20th, 1877, from a clinic by Mr. WAGSTAFFE:—

W. R., aged twenty-seven; an asylum attendant, whose occupation was originally that of a painter, and who continued to superintend a good deal of the painting work at the asylum, was sent by Dr. Rayner to Mr. Wagstaffe, and admitted under his care into St. Thomas' Hospital on April 23d, 1877.

It seems that, about three weeks before this, he had fallen over some timber in the dark, and cut the side of his head severely. The left ear was almost torn off, and there seems to have been a good deal of hemorrhage. For the next two or three days he could eat and drink quite properly, and the wound began to discharge. On the fourth day, he says, his mouth felt stiff on the left side when he tried to eat. On the fifth day his teeth were clenched, and he could only take fluids. The jaws gradually became more closed, and left facial paralysis came on very shortly. Soon he began to feel pain in the left side of his neck, extending from the ear along the sterno-mastoid muscle, and this, with the progressive rigidity of that muscle, had been one of his greatest troubles. For the past week, pain had gradually extended along the spine. His bowels had been regularly open, his water passed in fair quantity, and there had been no marked intermittent spasms. His family and personal history were good. He had only once had any symptoms of lead colic, and those of the mildest kind.

When seen first by Mr. Wagstaffe, on April 23d, the following was his condition: "Countenance anxious; jaws set, but the mouth could be opened slightly by forcing the chin down. Both masseters were hard; the neck was stiff, owing to contraction of both sterno-mastoid muscles, but especially of the left. The abdominal muscles were very hard; there was some contraction of the lumbar spinal muscles. Left facial paralysis was apparent, but not very marked. There was a granulating wound, two inches in length, along the upper attachment of the left ear, extending backward and downward over the mastoid process. This was not especially tender. There were no spasms induced by manipulation. He could swallow liquids. The pupils were equal, acting. Temperature 99.2°."

On the first day of treatment he was freely purged. On the second he had a belladonna plaster placed on the wound. On the third day (April 25th), he remained in the same state as at first, certainly not improved, except that he had rather less pain in his neck and back.

Treatment by sweating was now begun. A covered framework was adjusted to the bed, and hot air passed inside by means of a tube connected with a heated cylinder. The temperature was raised to 140°, and maintained for rather more than three-quarters of an hour, by which time he became faint. The head was covered

during this time with blankets, leaving him only breathing-room through them to the external air. He continued to sweat profusely for about two hours after the bath, and during this time was covered with blankets. The sweating was repeated in the evening; and this treatment by morning and evening sweating was persevered in for twenty-three days—*i.e.*, till May 18th, after which time it was only used once a day for a week.

He began to mend rapidly, and on April 28th it is noted that "he opens his mouth much better in the bath."

On May 3d, the report states: "He can open his mouth much better; no pain down spine for last two days; sterno-mastoids and abdominal muscles almost absolutely relaxed for the same time; masseter of left side alone hard, but an hour after the bath he can put tongue out one inch. Left facial paralysis still evident to a slight extent."

On May 11th, the left masseter was rather rigid before the bath, but he could open his mouth an inch when it had been manipulated a little. He ate solid food, and was up for an hour.

On May 18th, there was no stiffness of the muscles; he could open the mouth slowly; the wound was granulating and small.

During the treatment, his wound was at first covered with a linseed poultice, and afterward with warm-water dressing. His bowels were kept regularly open by laxatives, and toward the end of his time he took a simple bitter tonic. He left the hospital on May 22d.

Remarks by Mr. Wagstaffe.—The case was one of considerable interest, but especially from the rapid improvement following the use of the hot-air baths. That it was a case of tetanus, though of not a severe type, is, I think, unquestionable; but it is one of the features of interest about it that, although the first symptoms of trismus appeared so soon after the injury (four days), the progress was undoubtedly very slow. As a rule, it has appeared to me that the earlier the appearance of symptoms of tetanus, the more acute and fatal is the disease; but it was not so here. The cicatrization of the wound, too, was not interfered with; and one can hardly imagine that the single application of belladonna produced any permanent effect, for there was not, I believe, any affection of the pupils. I was led to adopt the sweating plan of treatment upon the ground that if, as seems probable, the symptoms of tetanus are the result of the absorption of some active poison developed in a wound, the modes of counteracting this must be reduced to either a complete and early removal of the focus, or to administering some positive antidote, or to assist the elimination of the poison from the system. The first of these could only have been done early in the case, and, as far as my experience goes, has not proved of any value. The second I have tried for, but as yet have not succeeded in finding, though as early as 1865 I tried Calabar bean, and last year pushed nitrite of amyl to its physiological limits. For eliminating purposes, I do not know of anything so likely to be efficacious as the profuse sweating caused by hot air; and I, therefore, determined to give it a fair trial, and the result would induce me to use it again in more acute cases. The apparatus used was a very simple one, which has been long in use at St. Thomas' Hospital, and consists of a light wicker frame, covered with the ordinary blankets. At the foot end is a tube leading from a copper cylinder, which is heated by a spirit-lamp; and from the middle of the frame a chimney rises, and in this a thermometer is hung. The face is left exposed, and is moistened from time to time. After about three-quarters of an hour, the patient found h-

could not comfortably continue in the bath, and he was then covered with blankets and allowed to continue his sweating.

I saw him on July 23d, and found him perfectly well.

(c) SURGERY OF THE EXTREMITIES.

Dr. Sayre's Treatment of Diseased Spine.

The following abstract of the views of this distinguished surgeon, given in the *Lancet*, July 21st, 1877, will be welcome to many American readers:—

The great object of Dr. Sayre's treatment of diseased spine is to give rest or fixity to the diseased part, and so to localize the rest that the general locomotion of the patient may not be interfered with. If his plaster-of-Paris bandage is happily applied the patient soon finds his feet, and even ventures to jump in a way and with an expression that shows that the diseased spots are protected from pressure. This was strikingly shown in the case of a little girl at University College.

The two points in the treatment are, first, to procure an extension of the spine; and, secondly, while the spine is extended, to apply a plaster-of-Paris bandage round the trunk from the ilium to the axilla. If this is properly applied while the spine is extended, it has the effect of holding the ribs still, preventing their action, and therefore the movement of their facets on the corresponding facets of the diseased vertebræ. The work of respiration is taken off the ribs, and thrown upon the diaphragm.

Before the patient is ready to be extended it is necessary to put on a close-fitting shirt, over which the plaster-of-Paris bandage is to be applied. This should consist of some elastic material, not with sleeves, but tying in a soft knot over the shoulders. To allow for the play of respiration, etc., and to prevent pressure on the iliac bones, a pad of tow in a silk handkerchief should be put from below under the elastic skin-fitting shirt. In young girls approaching puberty a similar pad is placed over each mamma, to be withdrawn from above just before the plaster is set. It is withdrawn when the plaster begins to set. It is of great importance that there should be no inequalities in the shirt, as they would give rise to discomfort, and perhaps a sore.

First, the extension of the spine. This may be procured by two assistants, one holding the patient by the axillæ, the other drawing gently on the ankles. But Dr. Sayre has an apparatus for suspending the patient by straps under the occiput and the chin, and attached superiorly to a tripod of iron, the feet of which rest on the ground. As soon as the patient is raised, carefully, by this means from the ground, and provided that the straps fit well, there is a marked expression of relief in the face of the patient, and a corresponding improvement in the shape of the spine, the curves, lateral or acute, being undone in a great measure.

Secondly, without unnecessary delay, the bandages should now be applied. We must be particular in describing these. They should consist of crinoline muslin or "cross-barred muslin." This has large interstices which take in more of the plaster-of-Paris than the common materials of which bandages are made. They should be three or four inches wide and not too long. They should be somewhat loosely folded, and kept in an air-tight tin vessel. Before being used they are to be put *vertically* into water. When all the air bubbles have escaped from them they are ready for use. On being taken out of the water they should be gently squeezed, so as to get

rid of all surplus water. Taking a roller in the hand, commence just around the smallest part of the body, going to the crest of the ilium and a little below it, and lay it round the body smoothly, but do not draw upon it at all. Simply unroll the bandage with one hand, while the other follows it and brings it into smooth, close contact with all the irregularities of the surface. After one or two thicknesses of bandage have been laid around the body in the manner described, Dr. Sayre places vertically narrow strips of flexible and perforated tin, two or three inches apart, parallel with each other, and in number sufficient to surround the body. These—which strengthen the bandage, while adding little to bulk or weight—are to be held by an assistant while the bandager continues to apply two or three more layers of the plaster-of-Paris bandage. As soon as the application of the bandage is complete the patient should be unsuspended, and laid carefully on his back on a water-proof mattress, without bending the jacket of plaster-of-Paris which has been now applied. As soon as the patient is laid down, dry plaster should be shaken over the casing, so as to get more of the plaster into the dressing, rubbing it in with the hand. Before the bandage sets the surgeon should withdraw the two pads which were placed under the shirt, and then, by a slight pressure of the palmar side of the thumb in front of the ilium, and of the hand behind the crest, squeeze the cast forward, so as to allow for the bony projection. Where the bandage has been well prepared and applied it will be hard and dry in about half an hour, and the patient will feel comfortably supported. Spaces for the arms should be cut out.

Where the upper dorsal or cervical vertebræ are affected Dr. Sayre incorporates in his cast an instrument consisting of a light vertical bar, with lateral rib-like pieces of flexible tin, and having at its top a light apparatus for suspending the head and taking the weight of it off the affected portion of the spine.

The plaster-of Paris bandage is also applied, after extension by suspension, in cases of lateral curvature, with marked results in lengthening the patient, reducing the deformity, and curing the disease. Time must elapse before we can judge fully of the value of this treatment, but already its power to relieve patients, to increase their height, and to improve their looks, is apparent, and it is to be hailed as a dispensation from that yoke of iron appliances which has been at once so unbearably irksome, costly, and useless.

Excision of the Head of the Humerus.

Dr. W. A. Johnson reports in the Philadelphia *Medical Times*, December 9th, 1876, a clinical lecture on this subject in Jefferson College, by Professor Gross, as follows:—

The patient now before you is a medical gentleman, twenty-six years of age, who, three years ago, was thrown from his buggy on his right shoulder, receiving a severe contusion, followed by the usual symptoms of inflammation. You observe a cicatrix situated about the middle of the arm, at which, as we are informed, there was a continuous discharge for a year and a half, beginning soon after the accident. After the parts healed, the joint was anchylosed. About six months ago the same shoulder received a similar injury. You now notice two fistulous openings upon the anterior surface of the injured shoulder, from which there is a constant discharge of a fetid character. On introducing the probe, I find that one of these fistulous tracts leads directly into the articulation, while the other inclines upward toward the coracoid process. By firmly grasping the scapula, and at the same time moving the arm, you

observe the joint has lost its functions. The deltoid muscle is wasted from the joint effect of disease and the want of exercise.

The patient's general health is good. He tells us he never had disease of any kind, and knows of no hereditary taint.

Anchylosis is generally produced by inflammation of the synovial membrane, with plastic deposits upon its surface. It may arise from all kinds of injuries. In this patient there was a contusion giving rise to synovitis, and an effusion of plastic matter. This matter became organized, bands of adhesions formed, and the joint became fixed and immovable. The inflammation extended to the periosteum, and necrosis and absorption of the articular cartilages took place. The glenoid cavity was effaced, and the tissues within and around the joint became roughened and bound down by organized plasma.

When the anchylosis is of recent standing, when the adhesions are weak and of limited extent, and when the joint is not too complicated in its structure, a reasonable hope of breaking up the morbid adhesions and re-establishing the functions of the joint may be entertained; but under opposite circumstances, it is useless to resort to anything short of excision as likely to be of any permanent benefit. Necrosis and caries of the head of the humerus and contiguous surface of the scapula are the most common reasons for resection, and render the operation necessary in this case. The mortality from excision of the shoulder and elbow joints, even in traumatic cases, is comparatively insignificant, while excision of the wrist and hip very frequently proves fatal. It is more dangerous in the knee than in the hip, and from excision of the ankle joint very few recover. Excision of the head of the humerus was performed successfully by Prof. Warren, formerly of Baltimore, to relieve the pain caused by pressure of the head of that bone upon the axillary plexus of nerves, in an unreduced dislocation. The late Prof. Blackman, of Cincinnati, performed a similar operation with equally happy results, on account of rheumatic arthritis.

There are several methods of exposing the bone. Some prefer the V-shaped incision, others the flap operation. The elder Prof. Pancoast makes a curvilinear incision. These methods afford the surgeon ready access to the joint, and enable him to effect incision with the greatest facility; but they all have the disadvantage of inflicting severe injury upon the deltoid muscle in consequence of the division of its fibres. The simple vertical incision that I am in the habit of using is free from this objection. The incision is begun just below the acromion process, and is carried down through the belly of the deltoid muscle to within a short distance of its inferior attachment. After the parts are exposed, it is of primary importance to detach the periosteum, which is so indispensable to the formation of new bone. We must avoid cutting the long head of the biceps muscle. You notice, as I cut down upon the parts, that there is considerable hemorrhage, due to the indurated condition of the tissues from plastic deposits, which prevents retraction of the vessels. You will observe in this case the use of acupressure in controlling hemorrhage. After the tissues are all separated, by rotating the arm, there is little difficulty in protruding and removing the head of the humerus. Other things being equal, the smaller the portion of bone removed, the less impairment of function will there be liable to follow. I find the glenoid cavity effaced, the articular cartilage on the head of the humerus destroyed, and some softening of the osseous tissue. A cold compress will be applied to the wound for a couple of hours. The parts will then be brought together and retained by a few interrupted sutures, an oil tent being placed in the

most dependent part to facilitate drainage. The limb will be firmly secured to the body by adhesive strips, assisted by the roller, and suffering relieved by a hypodermic injection of morphia.

The patient was again before the class, six weeks subsequent to the operation, and on the eve of his departure for his home in California. The parts were in a good condition, the patient having suffered no untoward symptoms. The wound was closed, with the exception of a small point at the most dependent part, from which there was a slight discharge of a healthy character.

A Case of Division of the Tendon Achillis.

Dr. ROBERT F. NOYES, of Providence, R. I., in the Detroit *Medical Journal*, June, 1877, reports the following case:—

Mr. X., aged fifty-five, had the misfortune upon October 14th, 1876, to sever, with an adze, the great tendon formed by the gastrocnemius and soleus muscles. I was at once dispatched for, and upon arrival found a gaping wound, with an inch intervening between the superior and inferior portions of the cut tendon. Knowing the power of retraction of the muscles implicated, I deemed it inexpedient to attempt the approximation of the ends of the tendon by main force.

I flexed the leg upon the thigh, extended the foot upon the leg, and brought together, with one or two stitches, the lips of the gaping integuments. Light dressings were now applied; the position rigidly maintained by means of a slipper, from the heel of which extended a cord to be fastened to the thigh joint above the knee. The wound healed by granulation in six weeks, when the patient was allowed to move about upon crutches for six weeks longer. Then one crutch was dropped, and after this a cane was employed; and to-day, May 1, 1877, he may be seen in the streets walking so well that close attention is required to appreciate the slight inability.

The division of the tendon, the retraction of the muscles, and the healing of the wound by granulation, present no phenomena of particular interest. The treatment, too, was simply rational in its character. Flexion, complete and continuous, must be maintained. That nature should be kind enough to strongly unite the cut ends of the tendon without inflicting upon its periphery adhesions so strong as to interfere with the action of the great muscles of the calf is perhaps worthy of a passing thought. The material by which the ends of tendons are united is analogous to, but not identical with, the tendon itself. Adams and Padget have demonstrated that the bond of union is fibrous in its character, and that it is formed of some elasticity. Hence, in large tendons, it is necessary that nature shall have completely performed her duty before a strain is brought to bear upon the tendon. To obviate elongation my patient was required to wear a high heel upon his boot.

*On Some Mooted Questions in Relation to Articular Diseases.**

Dr. LOUIS BAUER, in the St. Louis *Clinical Record* for August, 1877, writes upon this subject as follows:—

Dr. Prince's paper has just reached us, through the courtesy of its author. We are aware that there are yet some practitioners who keep a loose connection with the exploded theory that the main cause of this class of diseases is a vitiated constitu-

* Considerations in Relation to Diseases of the Joints. By David Prince, M.D. Reprinted from the *American Practitioner* for February, 1877.

tion, more particularly the strumous diathesis. Obviously, the author has arrived at a state of transition. In comparing his former writings with the last publication, a change in his views is noticeable. The strumous causation has lost its charms to such an extent with him as not to appear in one single instance, and justly so, because it is a pathological nonentity, with which we cannot reckon.

There can be no doubt that a deranged constitution and constitutional diseases in general will make their imprint upon local affections; nay more, constitutional causes are, in themselves, enough to produce lesions of the joints, for every practitioner has observed them as the outgrowth of gout, rheumatism, exanthematous diseases, pyæmic affections, etc. But it is equally proven, that constitutional perturbations are more frequently the effects of strictly local joint affections. The more satisfactory results wrought by appropriate local treatment have furnished valid evidence of the correctness of this proposition.

There was a time when joint diseases were looked upon by surgeons as *noli me tangere.* This status has been reversed, and there are at present many practitioners who even covet the charge of those ailments, confident of successfully coping with them. Whilst, as a matter of course, every practitioner will pay due attention to constitutional complications, whether primary or consecutive, there is none who could show a single instance where constitutional treatment alone has given relief in joint affections.

The simple fact that these lesions are mostly amenable to local management, a fact which is conceded even by those who still adhere to the old doctrine, is the best of evidence in favor of traumatism and against constitutional causation. Or, are they prepared to ignore this logic, derived from the results of treatment, and will they still assert that a constitutional trouble can be at all reached and relieved by local appliances?

Although the strumous disease has still held its place in the text-books of medicine, we have unquestionable authorities who negative its pathological reality. In the year 1866, in the open meeting of the Medical Society of Physicians at Vienna, over which Professor Rokitanski presided, the writer of this article put the question to the presiding gentleman, whether or not he could point out a *distinctive pathological anatomy* of scrofulosis, and the question met with an emphatic "No." Virchow has given the same answer, and there are no authorities on the subject higher and more competent than the two just mentioned.

A very diligent article by Dr. Gibney has again brought this question prominently before the profession. In 860 cases collated by this assiduous author, especially with a view of meeting the two doctrines of causation, he states that to 250 cases local injuries were traced; that in 125 cases no causation could be found out, and that in 483 cases traumatic injury was denied. Again, out of 135 cases with traumatic injury, there was evidence of hereditary strumous disease in 77. In 20 cases no tabular note was entered upon the hospital journal. In 139 non-traumatic cases 72 gave evidence of hereditary taint, and in 39 no record was made. In 126 traumatic cases, 5 had both hereditary predisposition and acquired cachexia. In 146 non-traumatic cases, there were 32 which gave histories of both hereditary and acquired diathesis.

The analysis of Dr. Gibney is based on hospital records, which also comprise a very large and extended out-door department. Every one connected with a polyclinic or dispensary is fully aware that the entries on the hospital record of patients, particularly under the pressure of many applicants, are very superficial and cursory;

that there is hardly time enough to inquire into the causation of cases prescribed for, and that for these reasons the statistics derived from such a source should be taken with due allowance. But if the premises are surrounded with grave doubts, the analysis loses its weight.

Having paid special attention to this very subject for over a score of years, and having had ample opportunities for rendering ourselves cognizant of clinical facts, we feel strongly inclined to question the conclusions of Dr. Gibney's analysis, whilst according to him a most laudable purpose and diligence.

We hope the doctor will agree with us, being himself an expert in orthopedic surgery, how difficult it is to get at the exciting cause of divers joint troubles. The larger number of these cases pertain to early childhood, when understanding and speech are but in an incipient state, and the patients scarcely capable of rendering any account of the existing cause.

Among the poorer classes the children are so often without supervision, that accidents may happen to them without being noticed by an accountable person. Moreover, these cases are more numerous in cities than in the country, because city life is inseparable from high staircases, paved streets, alleys, and walks, and last, but not least, the density of population surrounds them with unknown dangers from which the country is free. In fine, there is the peculiar anatomical construction of the joints in childhood, which has its share in the establishment of diseases in children.

In this direction, then, we have to look and to inquire, in order to penetrate to the causation. The statement of Dr. Gibney, that there were so many cases at the Hospital for the Crippled and Ruptured, where no cause could be assigned, demonstrates very clearly either the superficiality of the inquiry, or the ignorance of the patients and their relatives, for there must be a cause for every effect. It will be safe to presume *traumatic influences* under such circumstances. A man of family, who has bestowed any attention upon his offspring, is aware how difficult it is to watch, to restrain and control the actions of his progeny. And in the humble walks of life, among that class of society that cannot engage help, the opportunities for accidents to occur are still more numerous.

There is another circumstance which is calculated to obscure traumatic causation, well known, however, to experienced surgeons, namely, the very slow and insidious development of these affections, so that months and years may elapse before the trouble clearly manifests itself to the surrounding family. When this may happen among intelligent adults, how much more will this be the case when it concerns infants and young children. We have but lately published such a case, that of a lady of good family and sagacity. If we had not fully established the proofs of the traumatic apoplexy, we might have felt inclined to fall back on constitutional causation, to which, otherwise, the patient had a well-established claim.

Our friend, Dr. Prince, asks the momentous question, why a sprain in one person, in one condition, passes without consequence, and in another person, in another condition, sets up a diseased action which continues for years? The answer seems not to be very difficult, without reverting to constitutional vitiation. In the first place, the sprains are of different degree, extent and effect. The usual concomitant of sprain is the extravasation of blood. A moderate extravasation of blood into soft parts generally disappears by gradual absorption. Large quantities of blood so extravasated frequently cause abscess. The blood extravasated into serous cavities may also disappear by absorption, but we have seen it give rise, likewise, to synovitis, acute hydrarthrosis and suppuration of the synovial lining in very h-

individuals. We once operated upon a man for what we at first thought to be a sarcomatous tumor, comprising the scrotum and the left testicle. The whole appeared to be a homogeneous mass of disease, and yet, when we had cut through the scrotum, the common and testicular-vaginal membranes were filled with the remnants of a large blood-clot, the consequence of a kick. In this case, the extravasated blood had excited a lively inflammation of the structures concerned, and involved the scrotum to such an extent that it was absolutely impossible to recognize the true condition until the knife was resorted to. The blood had been in this place for eleven years.

It can be easily imagined how moderate apoplectic clots may affect the cancellated tissue of epiphyses. We have two specimens in our collection, which clearly prove the destructive effects of these apoplectic clots in bone structure.

Another answer might be derived to the question of Dr. Prince from the special joint which is subjected to a sprain. In true Yankee fashion, we might give him another question back, why is it that contusions of the joints of the lower extremities lead more often to suppuration and still graver consequences, and why the joints of the upper extremities are comparatively exempt? But we will answer direct, out of respect to our inquiring friend. The former are not only organs of locomotion, but they have, likewise, to bear the superincumbent weight of the body, whereas the superior extremities have no additional function to perform. If the wrist, elbow, or shoulder joints are concerned in the contusion, the patient will put the extremity into a sling and keep it at rest. There are, however, few patients who will keep at home and in bed when the lower extremities are concerned, unless compelled by the violence of the pain. They will move the contused or concussed joints and aggravate their condition by carrying part of their bodily weight upon them; and this, in our opinion, is one of the causes why the joint affections of the lower extremities are more numerous than in the upper. If we take into consideration that local injuries to the joints are but exceptionally very painful in the beginning, and become more so in time, then it will be readily seen that many injuries would pass away without subsequent trouble if rest was observed, and that they become only so aggravated by constant use. The treatment of joint diseases renders this point clear beyond cavil. The most painful articular affection is relieved as soon as the extremity is rendered immovable.

We have still another answer for our friend, Dr. Prince. If a sprain should seriously disturb or partially rupture one of those inter-articular ligaments, which, in children, act more as a protective to the nutrient vessels, as, for instance, the ligamentum teres of the hip joint, hip disease would seem to be inevitable, from want of sufficient maintenance of the femoral head, whereas an extensive contusion, exclusive of injury to that ligament, might pass without serious consequences.

We might find still other arguments, but deem it hardly necessary, at the present advanced state of orthopedic surgery, to go into details.

Dr. Prince refers to another instructive example "of constitutional tendency," which he found in the Hospital for the Ruptured and Crippled, in New York City. He saw there a child, of eleven years of age, upon whom excision of the head of the femur had been performed four years previously. There were still several sinuses in full discharge, and there had been, from time to time, other evidences of "ostitic and sub-periostitic suppurative inflammations."

This "constitutional tendency" of the child proves, in our estimation, a most exquisitely good constitution, with which we should find no fault, when it could bear,

for four long years, an operation, loss of blood, repeated if not continuous discharges of matter, other ostitic and "sub-periostitic suppurative inflammations," besides hospital air. Dr. Prince will certainly admit that the example adduced is, in another direction, very imperfect. The questions should have presented themselves to him, whether the excision of the head of the femur had been sufficient to carry away all the diseased structure; whether there had not possibly been caries and perforation of the acetabulum; whether the matter had not burrowed through the acetabulum, below the periosteum, into the pelvic cavity; whether there were corroded bony surfaces in and outside of the pelvic bones, etc., which could account for the continuance of the discharge.

The doctor ought to bear in mind that the opening and excision of joints is occasionally undertaken to secure a free elimination for the matter, and the remnants of affected bony structure; that is to say, for legitimate objects. Fortunately, these operations become less frequent under better understood local treatment. Of course, perfect and speedy recovery by excision can only be expected when the entire diseased structure can be removed.

The very aggravated case of poly-articular disease Dr. Prince refers to is unquestionably of constitutional, probably of syphilitic origin, and we fully agree with him, that excision, under such circumstances, "must lead to disappointment."

In summing up, we beg to present the following aphorisms:—

1. A small proportion of joint diseases are unquestionably of constitutional origin.
2. Much the larger proportion of these diseases are engendered by traumatic influences.
3. Scrofulosis is a compound of constitutional diseases, and no distinct form with anatomical characteristics.
4. Joint diseases occur more frequently in the lower than in the upper extremities.
5. Joint diseases are more frequent in cities than in the open country.
6. Joint diseases rarely occur before the eighteenth month of infancy; they numerically increase till the fifth year, thence decrease, and become very rare after the eighth year, unless carried over from an earlier period.
7. Joint diseases among adults are comparatively of rare occurrence.
8. Joint diseases happen much more frequently among lively and vivacious children than among those affected by the so-called torpid form of scrofulosis.
9. Joint diseases are amenable to relief by local treatment.
10. Constitutional treatment, with a view to improve and give tone to the system, exercises no positive and direct influence upon the status of joint diseases.
11. The most prominent and aggravating symptoms are reflex pain and spasms, eventuating in permanent muscular contractions, in which the constitution has no part.

The Treatment of Genu-Valgum.

The *Archives of Clinical Surgery*, for July 15th, 1877, contains an extract from the *Lancet*, on the treatment of this deformity, by F. R. FISHER, F.R.C.S. It says that he concludes, after an extensive experience, that this deformity may be most effectually relieved by the manipulation of the limbs and the use of proper instruments, without any operation. He states that "genu-valgum arises always from ligamentous weakness," and that "the ligaments of the knee joint being thus affected are unequal to the task of sustaining nearly the entire weight of the body;

they give way, and the inner side of the joint being the least protected, knock-knee naturally results." The principle of Mr. Fisher's treatment is to overcome the contraction of the external ligaments, and to strengthen the weaker internal ones. The method of accomplishing this is thus described: "The femur being held firmly round the inner condyle with one hand, and so fixed, the leg is grasped with the other hand above the ankle on the outer side, and then gently and firmly pressed in a direction inward." This should be repeated morning and evening, the limb being placed in a retaining splint, so as to maintain the advantage gained by the manipulation. Douching with cold water and friction facilitate the improvement. In slight cases, the instrument used consists of an ordinary straight splint bandaged on the outside of the limb. The "trough splint" is used in aggravated cases—only, however, as a retaining power. Mr. Fisher thus describes it: "It consists of thigh and leg pieces, of a trough shape, in which the limb is firmly held by webbing straps." These pieces are connected at the knee by a ratchet joint having a lateral action. There is also a good broad knee-cup. After the limbs are straightened, supports should be worn for some time, to prevent relapse.

The Indications for Drainage of the Knee Joint.

Dr. J. Scriba, Assistant in the Surgical Clinic at Freiburg (Baden), recommends drainage of the knee joint, instead of excision, in the following cases:—

1. In acute serous inflammation, in the rare event of there being abnormal pain of sufficient severity to affect the patient's general health. 2. In acute purulent inflammation of the joint, as soon as there is distinct fluctuation; in the rare cases of osteo-myelitis involving one or both epiphyses; in the purulent inflammation which may complicate pyæmia, pneumonia, acute infectious diseases, and phlegmonous erysipelas of the lower extremities. 3. In chronic serous inflammation of the joint. 4. In fungous inflammation—(*a*) where the fluid secretion in the joint exceeds the fungous granulation in amount, and where the cartilage is still intact; (*b*) where there is excess of fungous granulation, but where caries is still absent. The presence of caries is a contra-indication for drainage and an indication for excision. Scriba lays down the following maxim in opposition to those British surgeons who counsel very early excision: "The earlier a chronic fungous inflammation of the joint comes under treatment, the better hope is there of giving the patient a useful, movable knee joint by means of drainage." It should be stated that Scriba only speaks of drainage applied to a joint which is opened at the moment the tube is inserted, and not to one in which there is a previous wound, either surgical or accidental, of some standing. The operation, as performed by Scriba, is briefly as follows: An incision, two to three centimètres long, is made on either side of the patella down to the joint, and a thick drainage tube inserted. If the bursa under the extensor muscles communicates with the joint, as is the rule, no further incision is needed. In the rare case in which it is isolated, an incision is made down through the quadriceps femoris, and a short tube inserted. The operation must be carried out with the strictest antiseptic precautions. Before the drainage tube is introduced the joint is swabbed with a soft sponge, in acute cases using a five per cent. solutionof carbolic acid; in chronic cases, or where there is fetidity, a twelve per cent. solution of zinc chloride. The tube is then put in, and the joint washed out through it with carbolic acid (two and a half to five per cent.) until the solution returns quite clear. During the injection the joint must be gently kneaded with the hand. In acute inflammation the tube must be removed as soon as possible. The greater part may be taken

out after the third or fourth dressing if the wound is perfectly sweet, and the remainder on the tenth to fourteenth day. If the secretion does not quickly diminish, the joint must be washed out again with carbolic acid, and the drainage somewhat prolonged; but the whole tube must never be left in after the tenth to twelfth day, for fear of irritating the cartilage on which it lies. In chronic cases, or where fungosity is present, the tube must be allowed to lie across the cavity of the joint for twenty to thirty days, in order to stimulate the lining membrane.

The Diagnosis of Hip Disease in Children.

The following very excellent directions are given in a lecture by Mr. HOWARD MARSH, Surgeon to the Hospital for Sick Children, London, in the *British Medical Journal*, July 14th, 1877:—

Diagnosis.—In examining a child suspected to have hip disease, be careful to place him on something firm and flat; a table covered with a blanket, a leather couch, or the floor. If you use a soft bed, he will sink into it, and you will, perhaps, overlook even a considerable deformity. Do not be content with anything short of a thorough examination. Do not pretend to say whether a child whom you have examined with his trousers on has or has not hip disease. Let him be undressed, so that you can move his limbs without being hindered by his clothes. Girls, past early childhood, may be fully examined if you use a shawl or a loose sheet to cover them.

1. You must look for abnormal posture of the limb or of the pelvis.
2. For stiffness at the joint.
3. Observe whether the glutei or the muscles of the thigh are wasted, and whether any, especially the adductors, are rigid.
4. Or whether there is any swelling about the joint, or in the thigh, or the iliac fossa.
5. Notice the relation of the trochanter to the side of the pelvis as compared with that of the opposite side.
6. Look to the length of the limb as compared with that of its fellow.
7. See how the patient walks, if he be able to do so.
8. If he have pain, learn its situation and character.

Abnormal Posture.—If there be any affection of the joint, however recent or slight this may be, there is usually, though not invariably, some fault in the child's posture; there is flexion of the thigh, forward arching of the lumbar spine (lordosis, as it is called), abduction, adduction, rotation of the limb, or slanting of the pelvis. In the later stages of the disease, faulty posture, as you know, often depends on structural changes at the joint, on absorption of bone with displacement of the trochanter; but in the earlier period it is due to abnormal contraction of some of the surrounding muscles. Mr. Hilton, in his lectures on Rest and Pain, has explained how the rigidity of the muscles that surround an inflamed joint is produced. He has pointed out that the same nerves that supply the capsule and synovial membrane of the joint with sensory twigs send motor filaments to the adjacent muscles, and that, when the interior of the joint is inflamed, the resulting irritation of the nerve filaments distributed within it is conveyed to the spinal cord, and is thence reflected along the motor branches that supply the muscles, which are thus thrown into a condition of abnormal contraction.

Any set of muscles around the hip joint may fall, either alone or in combination with other groups, under the sway of this reflex irritation, and be thrown into a

condition of contraction, with the effect of holding the limb in some fixed posture. Flexion and abduction, often combined with slight external rotation, generally predominate in the early stages of this disease; but in rare cases you may find the limb extended or adducted. Thus, about two years ago, Mr. Callender showed me, at St. Bartholomew's Hospital, a boy, aged nine years, with recent hip disease, in whom the limb was not only fully extended, but carried beyond this, so that its long axis, compared with that of the trunk, was downward and distinctly, though slightly, backward. This is the only instance in which I have seen a limb carried backward past full extension. I cannot say that the position was due simply to muscular action; how it had been produced was not clear. I have seen another case in which extreme adduction of the limb followed fright. A young lady, ten years old, while in the early stage of hip disease—it had been in progress about three months, and had been attended with no severe symptoms—was terrified by her father, who, after joining the volunteers, came into her room, in the dusk of the evening, in his uniform, and playfully ran at her with his cocked hat. She screamed violently, and buried her head under the bed clothes, but was soon pacified, and, after about half an hour, fell quietly asleep. Next morning the limb looked two and a half inches shorter than the opposite, and the pelvis was extremely twisted. The surgeon who was called in told her father that it would probably soon return to the nearly natural position in which it was before the fright. This, however, did not occur, and when I saw her, two years afterward, the deformity still remained.

Flexion.—Although this posture is in many cases so well marked that it is obvious at a glance, in others it is so slight that it is very apt to be overlooked. But you must take care that it does not escape your notice; for, as all who are familiar with hip disease will tell you, slight flexion is not only a valuable symptom of early mischief, but it is often the only symptom, besides slight stiffness of the joint, that can be detected. And let me give you a further caution. When you have detected flexion, you are very likely to come to a false conclusion as to its degree. That the limb can be brought down into a horizontal posture, so that it is perfectly parallel with its fellow, is no proof at all that it is not flexed upon the pelvis. It may be thus brought down, and yet be flexed at an angle of 120° with the trunk. The explanation of this circumstance, this seeming paradox, is very simple. In hip disease the joint is stiff, so that the femur and the pelvis are locked together and move as one piece. If you move one you move the other. When, therefore, you bring the femur down, it carries the pelvis with it, by turning it on its transverse axis. The pelvis is easily thus rotated, because it is connected with the trunk through the medium of the flexible lumbar spine, which readily arches forward.

And here a point is raised which must be considered, not only in relation to flexion, but also to other abnormal postures that result from hip disease. When the joint is stiff, its lost movements are transferred to the lumbar spine, so that compensation is secured for deformities which otherwise would entirely disable the patient. Let me illustrate this by reminding you of what occurs, under parallel circumstances, at another part of the body. You know that the arm remains useful for many purposes after the humerus and scapula have become fixed to each other by anchylosis at the shoulder joint; for movements lost here can be transferred to another "joint" in the neighborhood—to that, namely, between the scapula and the trunk. A patient with a stiff hip has the same alternative. Movements lost at

he hip can be performed at the lumbar spine. Compare, for a moment, the anatomy of the upper and lower extremities. Both these members consist of jointed levers arranged to act in a variety of combinations. These levers are connected with the trunk, not directly, but indirectly, by means of, in the one case, the scapula, in the other the pelvis, each of which constitutes a movable fulcrum. This arrangement necessitates a second joint contiguous to the first. Now, this mechanism of the skeleton—this double-jointing of the extremities to the spine—is an arrangement that adds largely to their functional endowments. Among other things, it provides that, if the joint by which most of the movements are usually performed be disabled, the patient can fall back on the vicarious action of the second. Imagine a patient who, along with a stiff shoulder joint, should also have his scapula fixed upon his trunk; or, what is equivalent, suppose that the arm were connected with the trunk by a single joint, and that this joint became stiff; his upper extremity thus fixed, like the branch of a tree, would be almost entirely useless. In the same way, were his spine stiff, if his lower limb became fixed in flexion on the pelvis, he could not bring his foot to the ground. He could only carry it in the air. But observe the resource he has in his movable lumbar spine. Since his pelvis and femur are locked together, any movement of his pelvis will be at once imparted to his femur. When, therefore, the direction of his femur has become oblique by its flexion on the pelvis, so that his foot is drawn off the ground, he is able. by curving his lumbar spine, to rotate his pelvis on its transverse horizontal axis, and so to make the femur vertical, and bring his foot to the ground again. This curvature of the spine is merely assumed, merely vicarious. Even when it has existed for years, it can be immediately and completely removed, either as the patient stands or as he lies, if you will, by raising his femur, turn the pelvis back to its normal posture.

But to return to the examination of the patient: it will be obvious to you, from what has just been said, that, before you can tell whether the limb is flexed, you must see that the lumbar spine is straight, otherwise you may mistake curvature of the spine for extension of the thigh. The best method of proceeding is first to flex both limbs upon the trunk to an angle, say, of 120°, or till you find that the spine is flat; then, keeping the suspected limb still flexed, to bring down the sound limb into full extension; and, thirdly, having placed the fingers of the left hand between the spine and the couch, with the right hand to bring the suspected limb very gradually down. If, without disturbing the outline of the spine, you can bring it into the horizontal posture, so that its whole length is in contact with the couch, you may be sure there is no flexion; the long axis of the limb corresponds with that of the trunk. But if, as you bring down the limb, you find that the spine is assuming an anterior curvature, you will have come to a point at which the hip joint is locked against further extension. If you go further, you will be mistaking a compensatory curve of the spine for movement at the hip. Having thus determined the question of flexion, see whether the pelvis is "square;" that is, whether, as the patient lies on his back, a line drawn through the two anterior superior iliac spines is horizontal, i.e., at right angles to the long axis of the trunk, or whether the pelvis is oblique, or, to borrow an expressive term from mechanics, "canted," so that the iliac spine of the affected side is either lower, so that the limb appears longer; or higher, so that it appears shorter than its fellow.

There are two distinct forms of distortion resulting from hip disease: first, those that are original; the direct result of abnormal muscular action produced by the

disease—flexion, abduction, adduction, or some combination of them; these have their centre at the hip joint; next, those that are secondary or compensatory, consisting of rotations of the pelvis by curvature of the lumbar spine, either antero-posterior or lateral. These latter belong to the almost numberless instances that might be given in which functions suspended or lost at one part or in one organ of the body are vicariously performed by some other part. In examining your patient, then, if you find the pelvis lower on the affected side, you must abduct the limb till the pelvis is square. If it be higher, you must adduct the limb. By so doing, you remove the secondary and develop the primary distortion, be it abduction or adduction, and are thus able to ascertain what is the real position into which the limb has been brought by the disease.

Stiffness of the Joints.—Next, see whether movement at the joint is impaired, whether the joint is in any degree stiff. And your examination must be of the most searching, though of the most gentle, kind; for what has been already said about flexion must be repeated now. Stiffness of the joint is one of the most valuable signs of hip disease, one of the earliest; sometimes it is the only one that can be detected. It is valuable also in an altogether different and contrary sense; for, in many cases, as I must point out presently, diseases around the joint simulate hip disease, and the absence of stiffness in the joint itself is the only sign by which a correct diagnosis can be made.

As the patient lies on his back, place the thumb of one hand on the anterior superior iliac spine, and with the other hand slowly and gently flex and extend the limb, and observe whether the femur moves freely in the acetabulum while the pelvis remains at complete rest, or whether the pelvis and the femur move together, the femur carrying the pelvis with it. Remember that this test has not been so applied as to negative the presence of hip disease till you have carried the limb first to its extreme degree of natural flexion, and then into the opposite position complete extension. Not rarely, although the joint is diseased, movement of the femur will appear, to all but the most careful examination, free in all its middle range between flexion and extension. It is only at the two extremes, or even at one of them alone, that limitation of movement can be detected. And let me observe that you may sometimes have your suspicions aroused by finding that, as you flex the limb, it does not move straight up to the ribs, but that it gradually assumes a position in which abduction is combined with flexion, so that, when you have flexed it as far as the joint will permit, the limb has also become considerably abducted. This peculiarity of posture is rendered the more obvious if you compare it with the opposite limb. The latter, you will find, may be fully flexed, and at the same time adducted, so that the knee crosses the umbilicus.

There is, however, another point of view from which limitations of movement must be studied. It must be remembered that affections in the neighborhood of the hip joint may produce rigidity of the limb, closely resembling the rigidity caused by disease of the joint itself. Thus, in cases of disease of the spine in which abscess has tracked its way down under the glutei, or in cases of disease, periostitis, etc., of the back of the pelvis, the limb cannot be completely flexed; while, in other cases, disease of the spine with psoas or iliac abscess, or abscess within the pelvis, the limb is maintained in a flexed posture and cannot be extended. The diagnosis, however, is easily made, although, if the truth be told, errors are very commonly committed.

In many of these cases that simulate hip disease, the mischief being confined either to the back or to the front of the joint, only one set of muscles (either the extensors

or the flexors) are rigid; and, therefore, although movement in one direction is limited, in the opposite it is free. For instance, in cases of psoas or iliac abscess, although extension is interfered with, flexion is free, and the limb can be carried completely up to the trunk; while in abscess under the glutei, though flexion is prevented, extension is impaired. Secondly, if you carry the limb into that position in which its movement is still free—in psoas abscess flexing, in abscess behind the joint extending it—so that the affected parts are relaxed, and then, having flexed the leg on the thigh, you grasp the knee and rotate the femur in the acetabulum, you will find the movement of rotation perfectly free. This is a delicate test and must be carefully applied. If the child be alarmed, or if there be any suddenness or roughness in your manipulation, all the muscles will be roused into contraction and will hold the limb as rigid as if the joint were really stiff. But if you will begin by rotating the limb gently, lightly turning it through an arc of less than a quarter of a circle, you may gradually go on to test it in its full natural range. Then, if the disease be outside the joint, this rotation movement will be perfectly facile and smooth. It may happen, however, that, although the disease is entirely outside the joint, both flexion and extension are limited. Thus, a few weeks ago, a child was sent here from the country in whom an abscess had opened and was now discharging just over the great trochanter. He was said to have hip disease. On moving the thigh either toward full flexion or full extension, the pelvis was carried with it, and so far the diagnosis of hip disease seemed correct. But when, as he lay on his back, the femur was placed midway between flexion and extension, so that both sets of muscles were, as far as they could be, relaxed, rotation of the femur in the acetabulum was found to be perfectly free. It was now clear that the joint was sound, and further examination showed that he had disease of the lumbar spine, and that the abscess at his trochanter, which, by the irritation it produced, had rendered the parts about the joint rigid, had burrowed down from this source.

I have seen many cases similar to this, cases in which it was unsafe to judge of the amount of movement at the joint by the degree to which you could flex and extend the thigh. To avoid error, you must also ascertain whether the femur is restricted in its rotation in the acetabulum; and remember that rotation is a better test of the state of the joint than flexion or extension. In other words, the hip is both an enarthrodial and a ginglymoid joint. The ginglymoid or hinge movements are frequently interfered with by conditions external to the articulation, the enarthrodial, or ball-and-socket movements, much more rarely. A safe rule, therefore, is always to test both forms of movement. If you find the enarthrodial perfectly free, you may be sure the joint is healthy, and that flexion and extension are limited by conditions not in, but around the joint.

Another method by which you should test the freedom of movement at the joint is by seeing whether, while the limb is semiflexed, complete abduction is free and can be performed without pain. In acute disease, even slight abduction frequently causes severe pain.

A Few Remarks on the Anatomy, Pathology, and Treatment of Knock-Knee.

Mr. Osman Vincent, Surgeon to the National Orthopedic Hospital, says, in the *Medical Press and Circular*, June 20th, 1877:—

There are few subjects in surgery which occupy a larger share of general attention than affections of the knee joint, and I propose this evening to consider one of

the most common, and, at the same time, the most satisfactory as regards its treatment.

Genu valgum, or knock-knee, is the most frequent deformity of the lower extremities. It is always an acquired, as distinguished from a congenital deformity. It is not dependent on, but is very frequently associated with rickets. It may exist separately from or conjointly with other distortions, such as curved tibiæ, genu extrosum, flat foot, lateral curvature of the spine, and others.

It may show itself at as early an age as twelve or fifteen months, but we constantly find it later, and should not relief then be sought and obtained, the deformity increases, gradually but surely, and, in time, renders locomotion impossible, or at least distressing.

Although poor children brought up in large towns are especially subject to this affection, yet the children of richer parents are not exempt, the more so if such infants are disproportionately large and heavy for their age.

In order the better to understand the deformity itself, and its cause, we will glance at the anatomy of the joint and its surroundings. The knee joint is formed by the articulating surfaces of the femur and tibia, kept in apposition by external and internal ligaments. Those mostly involved in the deformity before us are, externally, the lateral; internally, the crucial—the former governing the extension and flexion of the joint, the latter checking what little rotation the healthy knee joint is capable of—and it must be borne in mind that rotation cannot be made but in the flexed and semi-flexed condition of the limb, and consequently when the lateral ligaments are most relaxed.

This will account for the curious disappearance of the deformity, however severe, when the patient, lying on his back, flexes the leg on the thigh and the thigh on the pelvis. In this position the inner ankles can be brought into direct apposition, although previously, when in the extended position, they were several inches apart.

I must also call your attention, while considering the anatomy of the knee joint, to the greater length of the internal condyle, when compared with the external of the femur, when that bone is held in a perpendicular position. Now, as the centre of motion is the centre of gravity, and the centre of gravity in man is a movable point limited in the variation of its position between the pubis and sacrum, it necessarily follows that when the balance is disturbed the above-mentioned fact operates largely in aggravating and continuing the deformity.

Genu valgum generally commences by the superincumbent weight of the body being too great a strain on the internal lateral ligaments or ligament, for it by no means follows that both knees should be affected. Indeed, I have seen cases where the deformity was so extreme that one leg was everted almost to a right angle, while the other remained quite straight.

These internal lateral ligaments slowly but surely give way, until the knees touch each other, or even cross, and the feet cannot be brought together without stooping and bending the knees. The internal condyle of the femur becomes in a parallel line prominent, the external often to a certain extent absorbed; at the same time the tendon of the biceps, as well as the lower edge of the vastus externus, becomes very distinct; in fact, the biceps by its action helps to increase the deformity after the leg has assumed a certain degree of angularity, and, as a rule, the arch of the foot yields to the superincumbent weight. This assemblage of malpositions, slow at first, increase in proportion as the feet diverge, for the strength of the column of

support afforded by the lower extremities passes away *pari passu* with the increasing obliquity in the direction of the femur and tibia.

There is pain, often to a considerable extent, but always a feeling of weakness, after a time becoming so great that the sufferer has to relinquish his usual employment and seek relief.

Whenever there is inequality in the length of the two limbs, or a strong irregularity in the gait, there will be either some degree of lateral curvature, or an unnatural flexibility of the vertebral column, or both combined, arising from the constant efforts made by the patient to preserve the proper balance; but as this lateral curvature is only compensatory, we must look for its cure, or at least its amelioration, when the cause is removed, and the inequality in the length of the limbs reduced.

We must ask, are the changes which take place in the shape of the articulating surface—for change there certainly is, produced by the prolonged displacement of the bones—permanent? I am disposed to think not.

Patients regain the proper amount of strength and comfort when the bones have been set straight, and I have known several cases, of seventeen or eighteen years of age, able, after eighteen months' or two years' treatment, to dispense with supports, a circumstance which would have been impossible had the direction of the articular surfaces been altered.

We now come to the causes of genu valgum.

Beginning with the earliest and simplest cases that come under our notice, when the fond mother, having had more confidence in the food that man has proposed than in that which God has ordained, puts her child, aged twelve months, upon the ground and teaches him to walk, with any amount of adipose deposit, but little or no phosphate of lime, what may be the result?

The next class of cases we meet with occur in boys and girls whose previous life and bringing up has been such as to fit them, by their thoroughly unhealthy and debilitated state, for the production of any deformity; and being allowed to be on their feet, running about the street, till eleven or twelve o'clock at night, some kind of curvature of the legs will most certainly take place, and I am inclined to give the preference to knock-knee.

The next class of cases are those youths and girls employed in various ways in the shops and warehouses of this city, and who are often on their feet fourteen, sixteen, or even more hours at a stretch. Thus, combined with the fact that very often the surroundings are most unhealthy, in the way of bad ventilation, over-crowding, and inferior food, and also that the larger number of these cases come from the comparatively pure air of the country, are just at or about the age of puberty, and after a few months' exposure to these adverse circumstances the signs of impaired nutrition from imperfect assimilation become so evident, we can hardly wonder that from these external causes, together with the constant superincumbent weight, the lower extremities suffer, and knock-knee or flat foot results.

Having considered the causes and effects of genu valgum, let us turn to the treatment. This I propose to divide into three parts—

1. The removal of the superincumbent weight of the body, which tends to increase the deformity.

2. The strengthening of that already existing.

3. The constitutional treatment.

1. The removal of the superincumbent weight. *In the infant*, if the deformity is slight and discovered early, this is all that need be done; and with children under

twelve, who have no resources for the purpose of amusement, this is best accomplished by keeping them in bed. And here I may remark that not only does it seem an accepted opinion of the great mass of the people, but also of the profession itself, that remaining in bed destroys health; but the prejudices against this treatment have arisen from the fact that patients are generally sent to bed with a wasting disease upon them, and when the period of convalescence approaches they attribute to the bed that weakness and debility which is the consequence of the complaint for which they were consigned to it, and not the confinement to the bed itself.

Six weeks' rest in bed, with friction and manipulations, is all that is required for this class of cases. But one word on the kind and mode of application of the manipulations. They can best be employed by making a fulcrum of your own knee, placed between those of the patient, the power being your hands, holding his leg at the ankles, and the weight, the resistance of the contracted tissues. But even with this simple, though effectual method, great care must be taken that, during its application, the leg be kept straight and the toes looking directly upward.

2. The mechanical treatment of the second class I mentioned consists, unless severe, of rest and the application of long outside splints, with or without a knee cap of webbing, dependent on the severity of the case. And it must be borne in mind that it is next to useless, in cases of single knock-knee, to apply a single splint, as without the controlling power of the splint on the sound leg, by means of the back strap, that on the deformed one has a constant tendency to twist over or ride upon the anterior surface of the limb; but with this back strap properly adjusted, such riding is rendered impossible.

Together with the application of splints, the manipulations just now mentioned should be used in these cases, as in the former, and also frictions, to prevent as far as possible that loss of nutrition which is inseparable from a limb in a constant state of bandage.

3. In considering the treatment of the third class of cases, we will include those neglected ones which are allowed, from various causes, to assume the greatest possible degree of deformity.

Putting aside for a few minutes the question of the desirability or non-desirability of operative interference, and looking upon these cases as possible to be dealt with by mechanical means alone, we shall find that the best way of gaining our end is by what is called the trough-splint, which is, as you see, an apparatus of either tin or wood, designed to fix the femur and lower leg and foot, and then, by a rack and pinion acting upon a strong knee cap, exercise sufficient force to gradually reduce the deformed leg to its normal condition. This splint will require to be worn for from three to twelve months, according to the amount of deformity to be reduced, the age of the patient, the consolidation of the bones, and the elasticity and amount of contraction of the soft parts to be overcome.

Although slight cases may, when the leg shall have regained its normal straightness, be allowed to walk without mechanical supports, yet, as a rule, in severe cases they will be required for two years after the treatment by rest and splints has reduced the deformity to a proper degree of straightness, and until the articular surfaces have become adapted to the change in their relations, and until the muscles have regained their proper functions.

The constitutional treatment of knock-knees should be that of any debilitated state, combined with that usually needed for deficient earthy material in the bones.

viz., iron, iodine, cod-liver oil, quinine, and sea air; and, as regards diet, restriction in the quantity of fluids, increase of animal food, and especially fatty materials.

The question of division of the hamstring tendons, or at least the biceps, has often been argued. I am of opinion that it is a step to which recourse should not be had, as being very rarely necessary, except in severe adult cases; and, thanks to the better knowledge of the nineteenth century and the stride orthopedy has made, these severe adult cases are now but seldom seen. And again, so great an authority as Dr. Little himself classes such division among the "unnecessary orthopedic operations."

Given sufficient time, I believe any tendon or structure contracted by malposition or *external* influences, and not by nervous irritation, will yield to mechanical extension, gradually and constantly applied. Still, section of the biceps is a proceeding which may give important assistance with ordinary precautions, is free from risk, and saves the patient's time by a few weeks, which is often a consideration, especially in those cases which, by force of circumstances, are obliged to gain their own living or are dependent on precarious assistance.

II. MILITARY SURGERY.

Antiseptic Treatment of Amputation Wounds in Military Hospitals.

Dr. S. SHERWELL, of Brooklyn, writes to the *Lancet*, August 18th, 1877:—

I had the honor of serving in the Anglo-American ambulance in the war of 1870–71, and saw, in our own and other field hospitals, much of the unhappy consequences at Sedan and Orleans, particularly the latter. No one, I think, but a doctor who has been personally cognizant of the frightful ravages made by pyæmia and septicæmia in military hospitals can form an idea of the grief, rage, and hopelessness one feels when, on revisiting one of his wards or locales, he sees or hears of one of his amputated patients, who has apparently been doing well up to the sixth day, let us say, and who since his last visit has had the inevitably fatal chill and colliquative perspiration, almost as indicative of his near death by blood poisoning as if he then lay dead; that doctor, and that one only, knows the strain implied in bidding the poor fellow keep up heart, etc., knowing as he does that, without almost a miracle, his doom is certain. I beg, then, suspension of judgment by surgeons on what I am about to offer as a possible preventive, and that it shall not be considered too crude or unsurgical a proceeding.

Among all the Continental peoples charcoal is largely used, and everywhere available, or easily made. I would suggest, then, rude as it may seem, an instant envelopment of the wound, whose edges, etc., have been secured after amputation, especially of the lower extremity, in a sac or bag (a slit pillow-slip would answer) of charcoal, finely powdered, without any other dressing whatever, and a large excess of the same substance around it, this not to be removed under any circumstances (except hemorrhages, etc.) for some days at a time, and then only by a jet of water from some clean source, and the same dressing immediately reapplied, until the wound is so far advanced toward cure that convalescence is certain, or some contra-indication arises.

This proceeding would not have the extremely neat surgical look of a good dressing, scientifically applied; but I am convinced that in hospitals of this kind it would be infinitely superior in results to the orthodox dressings by the infected hands and armamenta of the ignorant or dirty army nurse or aid. The charcoal may, and, perhaps, should, be slightly dampened on the outer surface with some antiseptic fluid, according to the predilections of the attending surgeon; it would at least lessen dust. I am convinced that by this method "pyæmic horror" might be at least moderated. The proceeding is so exceedingly simple that I have hesitated to put it on paper, and have waited to see some one else start the idea. I can, however, find or see no analogous advice; that most resembling it, the "earth dressing," seems to be pretty much the same in principle; but this is superior in disinfectant quality, and infinitely easier and better in theory and practice.

In regard to the mortality in field hospitals, etc., I have often, after observing operations and results under the most celebrated surgeons on both sides during the Franco-German war, doubted if, after all, the "cold chop and bucket of hot tar," of the ante-Ambrose Paré's time, would not have had better success, at least as far as saving life goes. These remarks are none of them applicable, or only in a very modified sense, to the admirable surgical work and dressings in civil hospitals, where air, instruments, dressings, and assistants are all clean; the latter, especially, not overworked and careless.

III. MECHANICAL SURGERY.

Fatal Cellulitis Following the Use of the Elastic Bandage.

Dr. Stephen Smith, Surgeon to the Bellevue Hospital, New York, reports the following case in the *Archives of Clinical Surgery*, May 15th, 1877:—

A German, aged twenty-five, entered the hospital for treatment of necrosis of the humerus. He gave the history of an attack of acute periostitis, terminating in suppuration and the formation of sinuses.

On exploring through these openings, cloacæ were found, and within the involucrum loose fragments of necrosed bone were detected. There were two principal sinuses, one on the external part of the arm at the junction of the upper and middle third, and the other on the internal surface two inches above the flexure of the elbow. The patient was in excellent health, of stout build, and actively employed.

While the anæsthetic was being administered, the elastic bandage was applied from the fingers to a point just above the upper opening. As there appeared to be no purulent infiltration of the soft tissues, the limb having the general tonicity of health, the bandage was applied with equal firmness over the diseased portion of the limb.

The operation was quickly over, the dead bone being readily removed, and a free passage established between the upper and lower openings. This channel was thoroughly washed out with syringefuls of carbolized water, and antiseptic dressings applied.

On the following day there were signs of a local inflammation on the external part of the arm, just above the line made by the bandages. An abscess formed at that point, which was finally opened, and discharged a quantity of fetid pus. Before

it was opened, however, there were evidences of a commencing cellulitis, taking its departure from this abscess as a centre. This cellulitis spread rapidly over the shoulder, neck, and anterior portion of the thorax, with high bodily temperature and rapid pulse. Areas of cellulitis also developed over the hip and leg. Pleurisy soon after appeared, attended with dyspnœa and great prostration. Irregular chills followed, with clammy perspiration, a sallow skin, and all the evidences of acute pyæmia. Death took place on the twelfth day from the operation.

The autopsy proved the extension of the cellulitis from the abscess of the arm over the thorax and to the pleura; but the swelling and infiltration of the arm in the vicinity of the abscess and wounds of operation made it impossible to trace the undoubted connection between them. The infiltrated cellular tissue was very offensive; the pleura was covered with shreds of decomposing membrane, and the cavity contained sero-purulent fluid. Neither the lungs, brain, nor liver were involved.

In the use of the elastic bandage in operations for necrosed bone, where it is so useful by giving a bloodless wound, I have always been careful to apply over the infiltrated tissues a layer of soft and yielding material, as cotton wool, to prevent the possibility of forcing any septic matters into uninjured cellular tissue beyond the wound. But in this case there seemed to be no unusual succulence of the tissue, and the bandage was applied with ordinary tension over the diseased structures.

Cases Illustrating the Behavior of the Carbolized Catgut Ligature Upon Human Arteries.

Mr. Bryant read a paper on this subject before the Clinical Society of London, October 24th, 1877. He said that the carbolized catgut, as made by the Apothecaries' Company, Virginia street, Glasgow, had now been so freely employed since its introduction in 1869, by Professor Lister, that the time had come when an estimate of its value might be arrived at. He, therefore, introduced the following cases, supplied from his own practice, together with four preparations and drawings, in order to assist in solving the question. The first preparation was from a man in Guy's Hospital, who had had ruptured aneurism of the right common femoral artery, with ulcerative endocarditis. A catgut ligature was applied to the external iliac artery, but the man died of the heart affection fourteen hours subsequently. The inner and middle coats of the artery were then found completely divided by the ligature, and the external coat also divided in parts. Some clot existed above and below the ligature, and the catgut was intact. Preparation No. 2 was from a right common carotid artery, to which a ligature had been applied twelve days before death, for supposed aortic and innominate aneurism, with the effect of relieving pain and other urgent symptoms. In this case the artery had been completely severed; there was a clot above and below the point of separation, but it was not firmly adherent. The ligature had disappeared. Preparation No. 3 was that of a right subclavian artery ligatured with catgut thirteen days before death, for ruptured traumatic axillary aneurism. The man had died from lung trouble, all the parts about the wound having gone on satisfactorily toward repair. After death no suppuration was found about the wound; the artery and vein were normal, except that the former was ligatured. There was a firm clot in the vessel for half an inch above, and the same distance below, the ligature. All the coats below the artery had been divided and afterward repaired. The knot of the ligature alone remained. Preparation No. 4 was from a common femoral artery, ligatured nineteen days before death, for elephantiasis Arabum of the leg. Death ensued, from

gangrene of the limb. Very little suppuration occurred at the wound. All the coats of the artery had been divided and repaired, and good clots existed above and below the ligature, the knot of which, with perhaps some of its loop, remained. In all these cases the inner and middle coats of the vessels had been probably divided at the time of the operation, as would be done by any permanent ligature, the external coat afterward by an ulcerative process, though in the first case this was partially accomplished in fourteen hours. Mr. Bryant stated that he had also ligatured ten other large arteries in their continuity, with catgut, viz., five femoral, four external iliac, and one subclavian. One of these had died on the tenth day; in two there was secondary hemorrhage; and in the other cases an uninterrupted recovery, with little or no suppuration, ensued. In one of the femoral cases the wound healed by primary union, without one drop of pus. In no case was the antiseptic spray used. Rest, moderate pressure over the site of operation, and dry lint or water dressing were alone employed. In the single fatal case, death ensued from pyæmia and cardiac disease. The inner and middle coats of the artery were there divided, and the outer coat ulcerated. Only the knot of the ligature remained. In the subclavian case a little hemorrhage took place on the fourth day, but was arrested by pressure, and the wound then healed. In one external iliac case the wound, which had almost healed, bled on the twenty-ninth day, but pressure arrested the hemorrhage, and all did well. These further cases led one also to conclude that the ligature at first divided the middle and inner coats, and then excited ulcerative action in the external coat. "If, therefore," said Mr. Bryant, "I cannot endorse what the distinguished introducer of the catgut ligature claimed for it in 1869, 'that by applying a ligature of animal tissue antiseptically upon an artery, whether tightly or gently, we virtually surround it with a ring of living tissue, and strengthen the vessel where we obstruct it,' yet I may express my belief that, as the loop of the catgut ligature dissolves within an uncertain period, and there is not, of necessity, any sloughing or ulceration of the whole coats of the constricted artery, as must ensue where a more permanent material is employed, we have in the carbolized catgut the best ligature at our disposal."

Simplification of Orthopedic Apparatus.

Dr. EDMUND ANDREWS, Professor of Surgery in Chicago Medical College, sends a communication upon this subject to the *Archives of Clinical Surgery*, April, 1877:—

Orthopedic surgery is encumbered more than any other branch of our art with an unnecessary complexity of apparatus. Very often the brace ordered by the surgeon is absolutely and utterly beyond the pecuniary ability of the distressed patient, and not unfrequently, when purchased, it proves so complicated that the family physician, to whom the patient returns after visiting the city surgeon, neither comprehends nor can successfully manage the terrible machine.

Before this branch of surgery can attain its proper usefulness, it must attain to a higher perfection in simplicity, cheapness, and comprehensibility, and lay away among the paraphernalia of old torture chambers very many of the appliances heretofore used.

New inventions are apt to be complex. It is only as we approach perfection that we attain to simplicity. Even in little things we find good illustrations of this principle. Not many years ago, surgeons dotted their apparatus all over with buckles, in the manner of harness makers. It was only after years of experience that it

dawned on the whole profession, simultaneously, that a strap can be buttoned upon a simple knob far more easily and quickly than it can be put into a buckle. The thought seemed to come to everybody at once, and now the buckles have almost disappeared.

One of the most complex and troublesome pieces of apparatus in use is the one generally made to extend inflamed ankle joints. It is effectual, but it is costly, cumbersome, and rather tedious to apply. For some years I have used, with the greatest satisfaction and excellent results, a much simpler device. The following cut gives a correct idea of it. The top of the foot and the lower half of the leg constitute two cones, whose apices meet at the ankle. Now if any moderately firm, well-fitting material surround these parts, and be laced together with some firmness, the two cones will be pressed apart, and extension of the ankle secured; or, to put it in different terms, the inverted cone laced to the leg is a counter-extending force, while the lacing together of the hollow cone embracing the upper surfaces of the foot tends to push that member downward, and thus makes extension upon the joint. To construct this, a plaster cast should be taken of the foot and leg, with the foot hanging free and pointing somewhat downward. This position is found by experience to be much the best. A piece of wet russet harness leather is wrapped around the cast and crimped to a perfect fit by winding a stout cord, or a piece of webbing, all over it. The leather laps over itself in front. After a few hours' drying in an oven, or on a stove, the leather hardens and retains its shape. Before applying the leather, a little building out of the malleoli of the cast should be done with plaster-of-Paris, that the leather may be well moulded out, and not press painfully on those prominences. Eyelets are set in the overlapping edge, and in a strip of leather sewed to the part opposite it, so as to allow of lacing it up to any desired tightness. The eyeleted edges of the leather should be wider apart on the dorsum of the foot than elsewhere, as, owing to the yielding of that member, the edges lace together more than on the leg. The brace is finished by pasting in a chamois leather lining. It fits the limb like wax, keeps up a gentle and desirable pressure on the joint, maintains immobility, and pushes down the foot so as to make an effective extension of the ankle joint. No screws, racks and pinions, nor even adhesive straps, are required. The action of the instrument has pleased me beyond measure, by its simplicity, the ease with which it can be taken off and reapplied, and its efficiency in curing the inflammation.

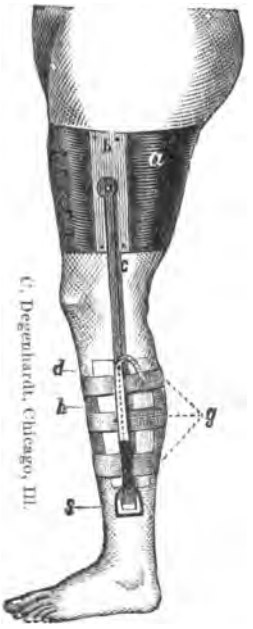


The same principle can be temporarily carried out by means of a dextrine splint, open behind, and compressed by an elastic bandage, or even by a common roller.

I have also found great satisfaction in simplified braces for inflamed knee joints. If the knee can still be straightened, I apply the apparatus shown on p. 684 :—

The leather lacer at the top spreads its pressure over a wide surface, and also spreads out somewhat upon the bulge of the nates, so that hardly a perceptible pressure is exerted upon the veins at any one point; scarcely any; hence there is little or no tendency to that venous congestion and swelling of the parts below which authors say the ordinary apparatus produces if no bandage is used; yet I think that the practice of employing a compression bandage is useful to the knee, even if no tendency to swelling exists.

EXTENSION SPLINT FOR INFLAMED KNEE IN THE STRAIGHT POSITION.



a. Leather, laced in front.

b. Steel plate, riveted to each side.

c. Rod, terminating in slot *s*. A similar rod is on the other side of the limb.

s. Slot, with a friction roller.

g. Adhesive straps, to the lower end of which an elastic band is sewn.

h. Elastic band, terminating in a leather strap, which is passed through the slot *s* and turned up, and being strongly stretched, is buttoned to a knob, *d*.

MEASUREMENTS REQUIRED.

1. Circumference of thigh close to bulge of nates.
2. Circumference of thigh one inch above top of patella.
3. Distance of these two circumferences from each other.
4. Distance from upper circumference to a point two inches above lower end of malleolus.

The rod *c* is much slenderer than represented in the engraving, and is loosely jointed to the steel plate *b*. The broad, perpendicular adhesive strap should terminate a little above the slot *s*. To the lower end a stout elastic band is sewn, a few inches long, and of the kind used by some wooden-leg makers for springs. A leather strap is sewn on the elastic.

The opposite side of the limb is armed in the same way. The hip leather being laced on, the strap and elastic bands are carried down to the slot *s*, whose upper border is made by a little friction roller, that the band may run easily. The strap being drawn through the slot, is then stretched firmly upward by the hand and buckled to the knob *d*. It will be observed that while at first glance this may seem to be pulling up instead of downward, yet the fact is, the elastic, in passing under the friction roller, changes its direction, and pulls strongly downward on the adhesive plaster and the limb to which it is attached. The same manœuvre repeated on the opposite side doubles the force of the extension. The use of the elastic bands is not strictly necessary. A double tape carried through the slot and tied over the knob is simpler, and, if properly attended to, is equally efficient; but the elastic is convenient, because in any yielding or stretching of the dressings its contractibility still keeps up the tension without requiring so much watchfulness on the part of the surgeon. Elastic bands were in common use fifteen years ago, but of late have been much neglected. If occasion demands it, the surgeon can easily construct an extempore form of this splint, using simply leather, wood, and a few screws, and putting them together with his own hands.

It will be observed that there are no racks and pinions, screws, nor other mechanical contrivances for increasing the power. The amount of extending force required on a straight inflamed knee is never very great, and never beyond what the hands can readily exert by simply pulling firmly, first upon one strap and then upon the other.

There is no ring or band surrounding the limb at the lower end of the instrument, because such a thing is useless. The slot is kept in place by the band which passes through it, and cannot possibly get away. If it is desired to remove the apparatus

for any purpose, all that is necessary is to unbutton the two straps, when the brace can be slipped instantly off over the foot, and can be as easily reapplied. It is light convenient, painless, and efficient.

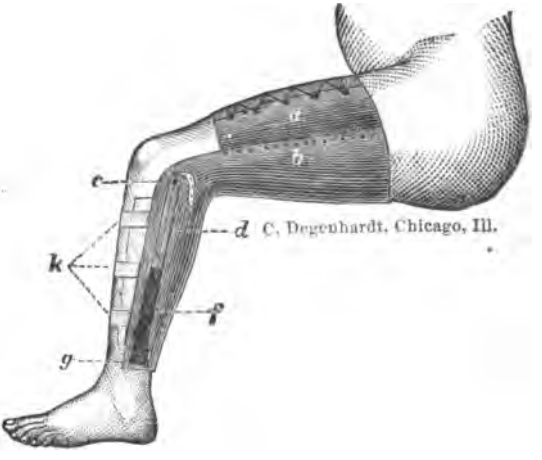
If, as often happens, the knee is not only inflamed, but also fixed in a bent position, most surgeons hold that it is necessary to straighten the knee before an apparatus can be worn. Now, the straightening process itself is irritating, and tends to exasperate the inflammation. Dr. H. Davis devised an extension for bent knees, but it has not got into general use.

I have resorted, with decided satisfaction, to the following plan:—

A plaster cast is first taken of the posterior half of the limb, from the nates to the heel. To this a thin splint, *b*, of hammered brass, is fitted. The upper part is completed by the addition of leathers, *a*, which lace in front, and by thus embracing the thigh and the lower portion of the hip in its hollow frustum of a cone, makes a basis for counter-extension. A slot, *g*, is made in the brass on either side at the lower end, and provided, as in the former apparatus, with a slender friction roller on the upper border. Adhesive straps are applied in the same manner as before, terminating in elastic bands or doubled tapes, which pass down through the slots, and turning up across the rollers, button or tie to the knobs *c*. By some addition to its details, this apparatus can have a joint at the knee, and be made to gradually straighten the knee.

SPLINT FOR INFLAMED KNEE IN THE BENT POSITION.

a. Leather, laced in front.
b. Brass splint, hammered to fit the limb.
c. A knob.
d. Leather strap.
f. Elastic band.
g. Slot and friction roller.
k Adhesive strap, to the lower end of which the elastic band is sewn, then passed through the slot, drawn strongly up, and its leather buttoned to the knob *c*. The adhesive straps must terminate somewhat above the slot.



If there is nothing peculiar in the form of the limb, a common tinner can fit the splint to the patient without a plaster cast.

Where a splint is required purely for strengthening knees which are fixed in the bent position, the following plan works admirably, and avoids the inconvenience of many of the splints now in use.

Many surgeons still rivet the thigh and leg pieces *aa* fast to the rods that pass to the joints at the knee, thus making each arm of the apparatus a rigid lever. The evil of this plan is that, in spite of the knee cap *c*, when the extension force is applied the centre of the instrument draws back a little, and the entire pressure is made at the upper and lower ends, near the hip and ankle. Here the instrument digs painfully into the flesh, in spite of all precautions. To avoid this, the armor pieces *aa*

should hang by their centres, as a cannon hangs on its trunnions, by movable joints, so that they always apply themselves painlessly to the surface of the limb, pressing equally in all parts. This part of the plan has been in use quite a number of years, and seems to have occurred almost simultaneously to several surgeons, while it is still unaccountably neglected by others. Being an old device among mechanics, its invention cannot be specially credited to surgeons. The power required for the extension has usually been obtained either by a straight brace screw behind the knee, or by a small endless screw on either side. The straight brace screw has the inconvenience of being in the way when the patient desires to sit in a chair. The endless screw joint, often incorrectly called a "cam joint," is, by far, the neatest and most compact power that has been used, but it has the objection of being very expensive; and, moreover, as it is so close to the centre of motion, the pressure on the teeth of the semicircle is immense, and not unfrequently breaks them.

INSTRUMENT FOR STRAIGHTENING BENT KNEES.



aa. Sheet steel pads, lined with chamois, embracing posterior half of leg and thigh.

b. A curved screw, on which a nut turns, to make a forced extension.

c. Knee cap.

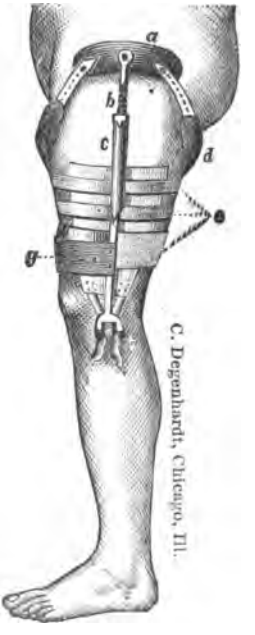
MEASUREMENTS REQUIRED.

Circumference at top of thigh, also above the knee, at the knee, below the knee, and above the ankle; likewise the distance from the centre of the knee to the top of the inner side of the thigh, and from the knee to the leg a little above the malleolus.

Expensiveness of apparatus is a serious objection for great numbers of the patients who need treatment; I have, therefore, sought to combine the economy of the screw with the convenience of the "cam joint." For this purpose I attach on each side a simple screw bent to a semicircle. The screw is riveted firmly to the upper arm of the instrument, and runs through a perforated projection on the lower arm. A nut, turned by a key, furnishes the requisite power to force the limb to a straight position.

All the splints for treating morbus coxarius are modifications of the original idea of Dr. H. Davis. Most of them make extension by means of a rack and pinion, which works well. Surgeons living in country districts, however, find it rather difficult to get them constructed by their home mechanics. They are deterred especially by the rack and pinion, which looks simple enough, but which is very difficult of construction to country locksmiths and gunsmiths. In such circumstances I have often advised the country surgeon to substitute a screw sliding in a tube for the ordinary extension bar, and the whole difficulty then disappears. The extension is regulated by the nut, which can be made hexagonal, and turned by a little wrench; but even this is not necessary. If the nut is made to work easily,

the surgeon can seize the tube in one hand and the screw in the other, and easily make with his hands all the extension the patient will tolerate, while the thumb turns the nut down against the tube to hold the extension. The nut should have a little knob or tooth on its lower side, to fit into a notch in the top of the tube, to prevent it turning spontaneously during the movements of the patient. The following cut shows the screw fitted to a splint somewhat like that of Sayre. The steel semicircular band *g* goes half around the front of the limb, and on the opposite side has a short rod projecting down beside the knee to tie tapes to, like the one shown on the hither side in the cut.



EXPLANATION.

a. Top pad, applied just below crest of ilium.
b. Screw, sliding in tube *c* and regulated by a nut.
d. Perineal band.
g. Half band of steel in front of thigh.
e. Adhesive straps, fastened to lower end of instrument, both sides of the thigh, by tapes.

In certain cases it is desirable to use a long splint, coming down to the foot, and riveted into the heel of the shoe. In that case the adhesive straps are transferred to the leg, and the tapes tied to eyelets or knobs properly secured to the lower end of the rod or to the shoe. The modifications required are obvious and simple, and do not need an engraving to be understood.

The belt strap around the waist and the strap to buckle around the lower part of the thigh, insisted on by many surgeons, are utterly useless; the instrument assumes a better position without them. Its natural direction is decided by the line between the extremities of the perineal band and the tapes on the adhesive straps, and this position should not be interfered with.

In all those cases requiring adhesive plaster extension, the surgeon will find the "rubber plaster" of Seabury & Johnson an immense improvement on the old varieties.

In joint diseases of the superior extremity a similar simplicity is attainable. I have under treatment at present a chronic inflammation of the wrist, with the following easily-constructed apparatus. A rectangle of thin brass or tin is bent into the form of half a cylinder, long enough to extend from the elbow to the tips of the fingers. At each side of the elbow is a slot and friction roller. At the other end are two eye-holes in the end of the brass, half an inch in diameter. The hand being enveloped in rubber, adhesive plaster, with tapes attached, is secured by tying the latter into the eye-holes. Other plasters on the forearm, above the wrist, have elastic bands attached to their upper extremities, terminating in thin leather straps. The latter pass over the friction rollers at the top of the instrument, turn downward, and are buttoned to knobs on either side. This makes perfect extension; and yet the apparatus can be easily made in the smallest country village.

If the elbow requires extension, either in a straight or bent position, the same principle is perfectly available, by merely varying the form of the tin case. The friction rollers so often referred to are the simplest possible things. They consist of simple pieces of strong wire soldered to the brace so as to cross the desired edge of

the slot. A little cylinder of tin or sheet brass loosely surrounds the wire, so as to revolve freely when the elastic band is drawn over it.

These things are simple, easily made, easily managed, and cost a mere trifle. The whole complex system of screws, nuts, racks, pinions, and extension bars of every description, are, in nine-tenths of the cases, cumbrous abominations compared with the less complicated plans. I confess to having used them in former years, but at present I only employ them in a few peculiar cases.

In the matter of spinal supporters for Pott's disease, a great step has been gained in the direction of simplification by the plaster-of-Paris dressing. It enables country surgeons, however remote from instrument makers, to apply to a large proportion of the cases perfectly efficient supporters without the aid of any mechanic. If, however, a more permanent apparatus is desired, any village surgeon can construct an efficient brace for Pott's disease, if he will give attention to it, and personally supervise his gunsmith or locksmith whom he will need to enlist in the work.

There are only two principles of any real value in this class of apparatus. One is the splint principle, which, applying steel splints with proper pads along either side of the spine, seeks to lash the body firmly back to the splints. This is not merely an attempt mechanically to arrest the growth of the deformity; it is curative of the inflammation. Every vertebra rests on three surfaces of support, viz.: the body of the bone in front, and the two articular processes behind. The body of the bone is alone diseased, and its inflammation is perpetuated by the rocking and pressure of the other vertebræ upon it. The articular processes are perfectly healthy in most cases. Now by flexing the spine well back against the splint, the pressure is brought upon the healthy articular processes, and taken off from the bodies of the vertebræ, which, being thus relieved, get well spontaneously.

The other principle is that of the corset. Dr. Wood, of Boston, formerly made very efficient supporters, which were in principle nothing else but corsets. The corset principle is best adapted to the adult female form. Here the wide spread of the hips makes a rapidly-sloping frustum of a cone, on which rests the inverted frustum formed by the chest, the junction of the two being at the smallest part of the waist. If a well-fitting corset, full of whalebone, be applied, and be made so as to lace in front, instead of using the ordinary steel locks, the action is as follows: The inverted cone of the waist rests in the hollow cone of the upper half of the corset. Now by drawing upon the strings at the lower cone, the corset tends to rise on the slope of the hips, and to push up the cone of the chest with it. Hence the corset principle is a valuable auxiliary in adult female cases, and to a less extent in males also. In young children there is no contraction at the waist, and a corset acts only as a splint.

Now the country surgeon, by the help of a mechanic and any sewing woman, may easily combine both these principles in one instrument, as shown below. The corset should lace and not lock in front. The drilling of which it is composed must be gored to fit the waist accurately, and it should be filled as full of whalebone as it will hold.

The old obsolete plan of trying to lift the upper part of the body by means of extensible crutch pieces running up to the axilla is now abandoned by all surgeons, because the axillary plexus of nerves does not tolerate any steady pressure.

The instrument makers of our large cities deserve severe censure for their folly, in two things. First, their obstinate adherence to and trust in these useless subaxillary crutch pieces; and second, the careless way in which they take orders

for spinal supporters to be made from mere measures sent by distant patients, without their personal presence. A spinal support made without the personal presence of the patient is almost invariably a failure; yet many thousands of dollars are thus annually taken from patients illy able to afford the loss.

aa. Shoulder straps.

bb. Corset, lacing in front, and well filled with whalebone.

cccc. Steel framework.

pp. Pads, pressing on each side of the projection of the vertebræ.



C. Degenhardt, Chicago, Ill.

If the patient cannot go to some surgeon of repute in a town or city, he should by all means get his home physician to construct a plain supporter on sensible principles, by the help of the village locksmith. He may depend upon it, that although the work may lack elegance in its appearance, it will be infinitely more useful to him than a brace made by a distant manufacturer from mere measure, no matter how celebrated that distant manufacturer may be.

Gutta Percha Splints in Angular Curvature of the Spine.

In the *Lancet*, July 7th, 1877, Mr. T. J. WALKER recommends in angular curvature a form of gutta percha mould. He says:—

The desiderata in an apparatus which is to aid the object aimed at in laying the patient recumbent seem to be these:—1. Such an apparatus must relieve the diseased vertebræ of the pressure caused by the weight of the trunk and upper limbs. 2. It must tend to fix the bones of the spine, and prevent all movement, whether rotatory or of any other kind, such as that implied in raising the body from the bed to perform any office of nature, or in the movement implied in carriage exercise, etc. 3. It must be light and comfortable to the patient, and it should be obtainable at a cost which brings it within reach of the poor, among whom we are less able to enforce the treatment by recumbency, and who are consequently more dependent upon such mechanical contrivances. Pointing out that the thorax being more or or less barrel-shaped, its lower part forming a portion of an inverted cone, an instrument resting firmly on the hips and presenting upward, as it were, a conical cup into which it received the trunk, would carry the weight of the chest, head and shoulders, he says: The most efficient splint, thus, will be one which approaches as nearly to this form as is compatible with the health and comfort of the patient; a complete girdle of solid material, forming a section of an inverted cone fitted to the lower p[illegible]rt of the thorax, would, however, be so confining that it could not be borne, and a the girdle must have a certain amount of elasticity, and must not be solid t[illegible]oughout, it is necessary that that part which is solid should be adapted with a[illegible]olute accuracy to the chest, fitting close to any irregularities of the surface, such a the margin of the ribs, etc., which give additional points of support. All the p[illegible]nts indicated as desirable are, I think, possessed by the simple gutta percha s[illegible]int or corset, which I have employed with the greatest benefit in almost every c[illegible]e of angular curvature of the spine which I have treated since 1863. The points t[illegible]e attended to in its construction, and on which its utility will depend, are the

following:—1. The material must be sufficiently strong. 2. The size of the splint must be such that it is (*a*) supported on the hips, not by its edge, but by being moulded to the pelvis; (*b*) it must extend upward, so as to reach quite to the upper dorsal vertebræ, being cut away under the axilla; and (*c*) it is quite essential that it should be so wide as to lap round and embrace the sides of the thorax beyond the angles of the ribs (the front edges should be separated only by two or three inches: unless it does so, it will merely act as a splint applied to the back, and cannot be regarded as a section of an inverted cone, in which character alone, as I have already stated, can it be looked upon as in any measure relieving the spine of the weight of the shoulders. 3. It must be very accurately moulded to the body, especial care being taken to press it well in at the waist, so as to ensure the conical form of the upper part. 4. The splint, when finished, must admit of being well laced in front, so as to make it act as a complete girdle.

The directions which I give for the application of the splint, are as follows:—1. To ensure sufficient strength, employ a sheet of gutta percha of the thickness of about a quarter of an inch. 2. Take the following measurements: (*a*) from the sacrum to the vertebræ prominens, for the height of the splint; (*b*) round the back of the pelvis from a point about an inch anterior to the spine of the ilium to the corresponding point on the opposite side, to give the width at the lower edge; and (*c*) round the back of the thorax from about the situation of the nipple to the corresponding point on the opposite side, to give the width of the upper part of the splint. Cut out the gutta percha in accordance with these measurements, allowing a margin for its shrinking when warmed, and cut away the top edge so as to admit of its passing under the arm. 3. To ensure an accurate mould, the patient should be stripped and seated at the edge of a feather bed; three or four strips of flannel, from four to five inches wide, and long enough to surround the patient's body and cross in front, are to be arranged like a many-tailed bandage, their edges overlapping about an inch, and laid across a feather bed, so that when the patient lies down he should rest upon them. The gutta percha, softened in water at a temperature of about 135°, should be lifted out of the water on a sheet of wash-leather, and laid carefully on the strips of flannel, the uncovered surface downward and the chamois leather upward. The patient, who should be seated on the edge of the bed with the lower edge of the gutta percha close to the hips, is now laid down with his back upon it, care being taken that the spine corresponds to the middle of the splint, and that its lower edge is as low as the sacrum. The gutta percha must then be rapidly folded round the hips, waist and chest, being, while still soft, pressed well in at the waist; the strips of flannel are brought round and fastened tightly with pins down the front of the body, the strip round the waist being drawn specially tight. All these steps must be taken very promptly, as the gutta percha, of course, rapidly cools. 4. When the splint is hard, the pins are removed, the splint taken off and trimmed up where it may be required, a front attached to it with eyelets on each side, so that it may be tightly laced down the front of the body, and to the middle of the top edge of the splint are attached two brace-straps, which cross over the shoulders and buckle in front.

IV. FRACTURES AND DISLOCATIONS.

Dislocation of the Hip Backward.

A paper on this subject, by Dr. HIRSCHFELD, is given in the *British Medical Journal*, August 18th, 1877:—

He remarked that there were two kinds of dislocation backward described in surgical works; the one in which the head of the femur was displaced upward and backward on the dorsum ilii; the other in which the head of the bone was displaced toward the ischiatic notch. These two dislocations presented appearances and symptoms very similar, viz., obliquity and shortening of the limb, with inversion of the knee and immobility of the limb. The deformity was greater and the displacement more marked, however, in the iliac than in the other luxation. These dislocations were caused by weights falling upon the patient when stooping with his knee inverted, or by the person coming to the ground with the knee bent while the body was still in motion. It required a great amount of force, with a certain position of the body and limb, to accomplish this injury, for the ligaments about the hip joint were very strong; and so, though by no means uncommon, it was not so frequent as might have been expected. What determined the position of the limb in these dislocations, and what prevented their reduction? Sir A. Cooper said that the fixed position of the head was the natural result of the influence of the muscles, which drew the bone into the position, and that the capsular ligaments had but little strength either to prevent dislocation or to resist the means of reduction; and other authorities agreed with him in this. Some, again, considered that, along with the contraction of the muscles, the position of the head of the bone was determined by the force which caused the dislocation, the rebound of the limb from the abnormal position into which it had been thrown, and the extent of laceration of the capsule. And Professor Busch recognized the resistance to the reduction of dislocation as ligamentous and capsular, though he did not specify the particular part. The author considered that the displacement was not due to muscular contraction, and that this was evident from the limb remaining fixed, even when the muscles were relaxed by anæsthetics, and requiring great force to reduce it by traction applied in the axis of the limb. Bigelow was the first to show that the malposition was due principally to the ilio-femoral ligament, and that this was also the obstacle to its reduction as usually attempted. This ligament, called the Y-ligament by Bigelow, arising from the anterior inferior space of the ilium, where it was about half an inch broad, spread out as it passed downward to be inserted into the whole of the anterior inter-trochanteric line. It was rarely broken, and thus determined the position of the limb in dislocations, and this was proved by dissection; for when all the soft structures were divided except this, the four ordinary dislocations could be produced, and it was only by the rare rupture, or partial rupture, of this ligament that any anomalous positions could occur in dislocations backward. This ligament was thus important; but it was still more so, as it enabled us to reduce a dislocation readily by using it as a pivot on which the femur might be turned, as in the method of "reduction by manipulation;" and it was owing to the non-appreciation of the importance of this ligament, and the part which it played, that great traction by the aid of pulleys was considered necessary in all attempts to replace hip-joint dislocations, even when recent. He was quite aware that some considered that there was but one primary dislocation, downward and forward toward the foramen ovale,

and that all the others were secondary. He did not think this, however, in respect to all the dislocations on the dorsum ilii, and could not understand how a weight falling on the bent back could cause this. Again, in necropsies, the capsular ligament had been found torn posteriorly. He thought at the same time that, in dislocation into the ischiatic notch, the bone did generally pass out of the capsule below, or on the thyroid aspect of the acetabulum, when the thigh was flexed, and that, by subsequent violence, and while the neck of the femur was suspended by the Y-ligament, the head slipped upward and backward round not only the acetabulum, but also the capsule and the internal obturator tendon; the tendon of the obturator internus muscle and capsule thus intervening between the acetabulum and the head of the femur. This anatomical derangement accounted for the frequent failures to reduce the luxation by extension in the axis of the dislocated limb; for nothing short of rupture of the internal obturator could permit the head of the femur to reach the socket. In a case of dislocation, caused by the patient's being crushed to the ground by a boat falling on him, the extremity (left) was about two inches shorter than the other, and slightly inverted, the thighs were parallel, and there was no arching of the back. The trochanter was prominent, and lay *above* a line drawn from the anterior superior spine of the ilium to the tuberosity of the ischium. Free motion, with little pain, could be made. After trying to reduce the dislocation with pulleys, etc., as usual, but without effect, he took hold of the left leg, just above the ankle, with the right hand; flexed the leg upon the thigh, and the thigh upon the body; placed his left foot, unbooted, on the pelvis, to steady it, and his left forearm under the flexed knee as a fulcrum; pressed down the leg and raised his forearm, and so made traction on the thigh; rotated the knee outward, extended the limb, and the head of the femur slipped into its socket with a "crunch." The patient was put to bed, with a long splint, for ten days. After describing a rare fracture of the neck of the thigh bone, which this case resembled, the author made some observations on the reduction of such dislocations: (1) when recent; (2) when of long standing. He objected to pulleys, as being not always to be had, and as causing often injury to the soft parts to an extent quite unnecessary when force sufficient for the purpose is directed intelligently. The method he recommended as above was not new, but had been used from the earliest times, the object being to make the bone travel back by the way it came, but in the opposite direction. The directions for the reduction of this backward dislocation are given by Professor Busch as follows: "Flex the thigh to rather more than a right angle, adduct till the knee reaches somewhat over the opposite side of the body, and then rotate outward and bring downward." This had proved insufficient in his experience, and in several cases recorded, and something more was evidently required in many cases for easy and safe reduction; and that something which was required, in addition to flexion, adduction, rotation, and extension, was vertical traction or tilting, which, in some cases, had been supplied by the arm of an assistant, and, in the author's case, by his own arm below the flexed knee of the patient, raising the limb. He believed that, in recent dislocation, no more force was required for the reduction than what any tolerably muscular man could readily exercise. In cases of long standing he did not recommend great traction force to be applied at once, but would be inclined to try to rupture the adhesions formed by rotating in the manner that bone-setters had so long practiced successfully, when they wished to secure the normal movements of a neglected and stiffened joint. If this failed, he would have recourse to pulleys, on Dr. Bigelow's method, the patient being on his back, strapped to the floor, and the pulleys exerting traction

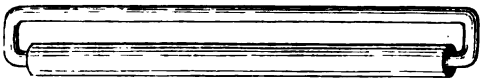
vertically from the roof, or from Dr. Bigelow's tripod, made for the purpose. He did not think length of time merely was any criterion as to when a dislocation might be attempted to be reduced. So long as the socket remained excavated and the bones not deformed by osseous growths, reduction should be tried; and even if the neck of the femur were broken, owing to its having undergone softening changes, the patient would not be worse, but better, and have a more useful limb. He thought it was doubtful if the capsule was ever an obstacle to the return of the dislocated bone; and considered it probable that, where the articular cavity was partially obliterated, it was the result of extraordinary violence, and consequent inflammation. He had found the cotyloid cavity retaining its depth and covered with cartilage after the head of the femur had been dislocated three years; and a dissection was on record where the head of the femur had been dislocated thirteen years, and in which the acetabulum retained its form and depth, as well as its cartilage.

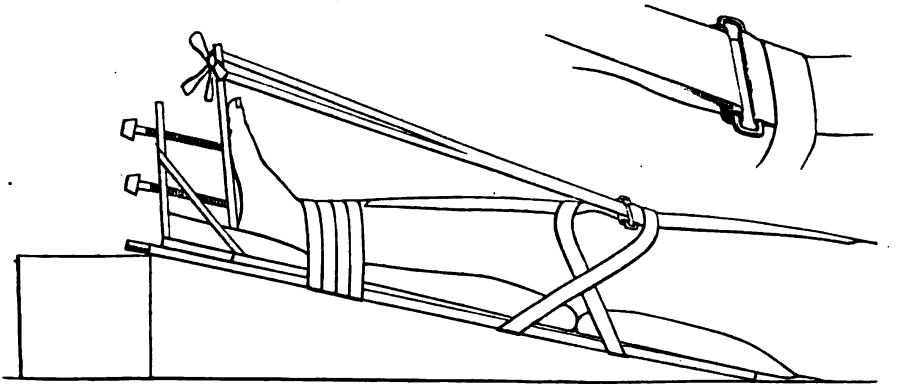
Treatment of Fracture of the Patella.

Dr. J. F. GALLOUPE, of Lynn, Massachusetts, writes to the Boston *Medical and Surgical Journal*, of August 16th, 1877 :—

All who have had much experience in the treatment of transverse fracture of the patella must have found the different methods recommended in the text-books inefficient and unsatisfactory to both surgeon and patient. Having treated a considerable number of cases by the most approved appliances with no better results than those obtained by "position" alone, I had concluded to relieve my patients of the annoyance of straps, bandages, and the like, and myself of the trouble of applying them, and to trust to simple treatment by position.

Upon hearing good reports of the method recommended by Dr. Sanborn, of Lowell, I gave it a trial, but found that the twisted plaster over the patella caused pain and excoriation of the skin; that the plaster was drawn into a string for some distance above and below the patella, and that the skin was dragged into a great fold, while the fragments were but little if at all acted upon. To obviate these objections I modified the appliance as described below: A tinsmith was employed to bend a piece of No. 13 wire to the shape and size here represented, and to surround one side with a tin roller,





like that of a common harness buckle; to this was sewed one end of a strip of plaster two and one half inches wide and about a foot long; the plaster was then applied to the thigh, with the wire exactly over the upper extremity of the upper

fragment. A similar strip of plaster was applied to the leg below the lower fragment, to which a strip of strong cotton cloth, about a yard long, had been sewed; a strip of plaster around the limb and splint, above and below the patella, served to secure the limb to the splint and to hold the ends of the other plasters down against the broken bone. The end of the cloth being passed around the pulley and drawn upon, the fragments were held together with the greatest ease and with comfort to the patient. The end of the strip of cloth was then split in two and tied around the end of the foot piece of the splint in a bow knot. This was quite as efficient as a weight would be, and much more convenient. The smooth cloth, passing over the broken bone, caused no pain and prevented tilting; the circulation was not interfered with, and easy control over the fragments was maintained.

I have now treated three cases in this way, with excellent results and with comfort to the patients. It is important that the plaster should be of good quality. I have used that of all the different manufacturers in the market, including the English, and also the "rubber adhesive plaster" (which is the poorest of all), but give the preference to that made by Shriver, of Philadelphia.

Two Rare Dislocations.

Dr. C. S. Briggs, writing to the Nashville *Journal of Medicine and Surgery*, July, 1877, says:—

DISLOCATION OF THE RADIUS BACKWARD.

Saturday, April 7th, I was called four miles in the country to see Mr. A. S., who had sustained severe injuries by a fall from a wagon. The patient was a strong, healthy farmer, about thirty-five years old. He had met with the accident in a rather singular manner. He was on his return home, and was seated in a chair placed in his wagon, a large dog being fastened to the chair. The dog suddenly jumped from the wagon, dragging with him the chair and its occupant, who thus received a considerable fall. On examination, I found an extensive lacerated wound, laying the bone bare, situated over the right eye; considerable swelling and ecchymosis about the eye was present. He complained of some pain in the elbow of the right arm, upon which he had fallen. The forearm was in a state of semi-flexion and complete pronation. Any attempt to supinate it, etc., caused the most intense suffering. Mobility was not marked, nor was there yet, about four hours after accident, much swelling. A depression was easily perceived in front of the usual site of the head of the radius, which was readily felt behind the external condyle. No fracture of the external condyle was present. The diagnosis of dislocation of the head of the radius backward was thus easily made, and with the assistance of the attending physician, Dr. Abbey, I proceeded to reduce it. Having put him thoroughly under the influence of chloroform, and grasping, with my left hand, the lower part of the arm, and the wrist with my right, I made gentle extension, and at the same time rotated it into the state of supination, feeling and hearing a distinct snap as the head of the bone slipped into place. A roller bandage was then carefully applied, and the wound on the forehead cleansed and drawn together with sutures. Dislocations of the radius backward are rare, Hamilton, in his admirable work on "Dislocations and Fractures," giving only twenty-eight cases, and these are mentioned as doubtful. The prominent symptom in this, as in all cases reported, is

the position of the forearm, which is in a position of semiflexion, and pronated, all attempts at supination being attended with great pain.

DISLOCATION OF THE CLAVICLE UPWARD AND FORWARD.

Pat H., aged fifty, came into my office May 10th with an injury of the shoulder. While entering a narrow door he slipped and fell with considerable force, striking against his left shoulder. He at once was sensible of great pain, which was increased by all attempts to move the arm. Considerable swelling of the shoulder followed, and the pain, though constant, gradually diminished. Two weeks after the accident he presented himself to me, not for treatment, but to learn what was the nature of the injury. Before stripping, I noticed the left shoulder lower than its fellow, and this, together with limited use, caused me to think it a dislocation of the shoulder joint. On the application of Dugas' sign, however, I found I was wrong. After stripping, the trouble was easily apparent. Just over the sternum was seen a distinct prominence, which was the external end of the clavicle, occupying the interclavicular notch. The movements of the arm were considerably limited; the hand could not be brought to the head, nor could the arm when extended be brought nearer the median line than on a line running straight forward from the shoulder. He refused to let me attempt reduction, which would have been easy even after the length of time that had elapsed since the accident. The great trouble in such cases is in the maintenance of the parts in position, the nature of the articulation and configuration of the parts making it difficult to apply proper apparatus. This dislocation is even more rare than the previous one, five only being mentioned by Hamilton.

V. AMPUTATIONS AND RESECTIONS.

Cases in the Surgery of the Hand.

In an able article on this subject, in the Richmond and Louisville *Medical Journal*, July, 1877, Dr. E. T. EASLEY, of Little Rock, Arkansas, says:—

If excision of diseased metacarpals becomes necessary, it is probably sound surgery to take away also the corresponding digits, for under such circumstances these organs could be of little service, and being weak and deprived of support might interfere seriously with those remaining. But the rule, as customarily applied to the thumb, must be of doubtful propriety. Other fingers may compensate in a considerable degree the loss of one; the loss of the thumb can never be supplied, and it is, therefore, a safe suggestion that it ought not to be cut off on such grounds as might determine the removal of a finger. Of course, if the metacarpal bone is removed, the utility of the thumb will be much diminished, but still it will be of more advantage to the hand than any apparatus hitherto made. It is insisted, then, that extraction of its metacarpal bone does not always necessitate amputation of the thumb. If the flexor and extensor tendons still retain a certain amount of influence, the part will be of great service. Besides, both Sir William Ferguson and Mr. Syme ("Observations in Clinical Surgery," page 38) have reported interesting and successful instances in which the course now recommended was pursued, and other examples could be presented. In all these operations it ought to be recollected, as a golden rule, that the palm is not to be encroached upon when it can be

avoided; incision in the palmar surface is never to be carried higher up than the fold of the joint. That through the phalangeal joints is a good and simple amputation, and in it, as elsewhere, the surgeon is to be guided by what skin he has to utilize to cover the stump. As a rule it is not best to take off the head of the proximal bone, but if there is a paucity of flap to cover it, its removal is advisable. The two operations, of which the accompanying illustrations show the results, confirm so far as they go, some principles already mentioned.

CASE 1.—Figure 1. General B. L., of Dallas, Texas, aged forty-five, of fine general health and temperament, was wounded in September, 1875, by the discharge of a common fowling-piece, at close range, and the hand powder-burned. The patient came into my hands through the courtesy of my friend, Dr. Sutton. The charge of small shot, entering the dorsal aspect of the hand toward its ulnar border, had shattered the heads and part of the shafts of the third and fourth metacarpals, when, taking a direction obliquely upward, it had torn up the soft tissue and bones of the index, medius and ring fingers. The operation consisted in the arrest of hemorrhage, removal of spiculæ of bone, cutting off tendons smoothly with the bottom of the wound, and adjusting the flaps. The head of the second metacarpal was sawn off only because its presence increased the tension of the flap. The splintered shafts of the third and fourth metacarpals were simply trimmed down to a point at which they would give a useful amount of support, instead of being exarticulated at the os magnum and unciform. The appearance of the member is pretty well represented in the figure; its utility and flexibility are all that could be expected or desired. In these material points it contrasts very strikingly with the cast of the result of a similar operation in the second surgical volume of the History of the War, page 1022. The stump has never been painful, and healed quickly and smoothly. As will be seen, the scar is altogether upon the dorsal aspect, the palmar surface being left to its accustomed use of opposing substances brought in contact with it, without distress or inconvenience. This wound suppurated but little, and was treated on a strictly antiseptic plan, to the judicious management of which, by Dr. Sutton, the rapid recovery is largely to be credited.

FIG. 1.



FIG. 2.



CASE 2.—Figure 2 is that of Mr. John H., of Little Rock, thirty-seven years old, a man of good habits and health. The wound, a lacerated one, was sustained while the patient was engaged in working a shingle machine, and involved both soft parts and bone. The wound of the medius, beginning about the middle of its second pha-

lanx, on the radial border, passed upward to the head of the bone, at which point the finger was completely divided. The same course in the main was pursued in this instance as with the hand of General L. A portion of the splintered shaft of the bone was dissected away from its periosteum, and removed nearly as low down as the insertion of the dorsal interossei muscles. The sharpened eminence of bone still left was cut off smoothly with the pliers, and after cleansing the wound the redundant integument on the ulnar border of the finger was brought over to meet the short flap on the opposite side. The cicatrix extends from the radial around to the dorsal aspect, as may be seen in the picture. Healing took place kindly and rapidly. The attachment of the flexor sublimis tendon was only partially separated, and hence there is a considerable degree of motion in the stumps below the joint. The patient feels sure that he could write if the right were the maimed hand. The cicatrix of the index finger is placed well over the dorsal surface, and the little stump affords a most useful opposition to the prehensile power of the thumb.

VI. LOCAL SURGERY.

(*a*) HEAD, NECK AND CHEST.

Extirpation of the Thyroid Gland in Some Cases of Disease.

Dr. J. F. MINER writes to the Buffalo *Medical and Surgical Journal*, July, 1877, of the feasibility of extirpating the thyroid gland in some cases of disease, with report of case. He says:—

Having my attention recently called to the feasibility or possibility of removing the thyroid gland by operation when diseased, and seeing how surgical authors have most thoroughly discouraged the attempt, and driven us from the field of contest when it seems in some cases cowardice to retire and abandon all effort, I propose to call attention to the question already perhaps settled in the minds of most surgeons, and to relate a case of some interest in connection with the subject.

After consulting our standard authors, the question still remains, What is the safest and best method to pursue? Without expecting to answer this question, I will briefly report a case of cystic degeneration of the gland, which resulted in perfect cure after extirpation, but have no doubt great differences are to be observed in goitrous tumors, and that no one method of procedure will be found applicable in all cases, or to the various forms of the disease.

Charles Hammel, aged fifteen years, of Wilcox, Pa., consulted me July 8th, 1876, for a tumor of the right portion of the thyroid gland, as I inferred, mainly from its movements in deglutition, location, size, period of growth and other appearances. rents said, "Growth was first noticed seven years ago. After severe cold, throat alled very large, as large as a large bowl. When the swelling was reduced, it left mp about the size of a walnut, which continued for several years without change; past two years increasing in size, interfering badly with his breathing, so that he not take any severe exercise, and at last, when asleep, his efforts to breathe are nful to see." He came to Buffalo as a last resource, his friends willing to accept risks offering any hope of relief, as he could not longer endure the distress of ffocation. At my suggestion, he was admitted to the hospital of the Sisters of

Charity, and situation noticed for a few days, during which period he was examined by quite a large number of surgeons who visited the hospital and were attracted by his expression of anxiety and distress. Seeing the impending death if no relief could be afforded, I decided to attempt removal, and if insuperable difficulties were met, to change the plan to meet the necessities as presented. The tumor was fully exposed upon its outer surface and its character noticed. By carefully separating it from adjacent parts, we found it possible to nearly surround the growth with the fingers and handle of scalpel. A few not large arteries were ligated as they were divided or ruptured in the process of separating the tumor from its connections. The principal vascular supply was from its base, but no vessels of the size of the inferior thyroid were divided. Galvanic cautery was applied to the deep surface, which afforded profuse hemorrhage from numerous small vessels which could not be easily secured by ligature, the neck of the gland divided, and right portion of gland removed attached to the tumor. Until this time I had no doubt of the goitrous character of the growth, but the comparative ease of removal, absence of dangerous hemorrhage or other difficulty, led me to inquire again if really the right portion of the thyroid body had been thus removed. More careful examination showed cystic degeneration of the gland, the largest cyst containing about four ounces of viscid yellow fluid, resting upon remaining portion of gland and surrounded by several small cysts. The gland did not appear to be wholly involved in disease. The boy left the hospital in about three weeks, fully recovered and relieved of all trouble.

The whole subject of goitre, bronchocele, struma, Derbyshire neck, etc., as included under the general head of benign enlargements of the thyroid gland, are most thoroughly before the profession, and I have no expectation of adding anything important to our knowledge of this form of disease. Goitre should be distinguished from bronchocele, ursa, cystic tumors, etc. All are aware that goitre has been described under an extensive variety of forms, which Virchow has shown may all be reduced to, and regarded as, hypertrophy or hyperplasia of the normal gland elements; that the differences arise from the different degrees of implication of the different normal elements, and from secondary processes which have the character of retrograde metamorphosis. The changes are ordinarily unimportant, but when the gland is the seat of pathological conditions resulting in enlargement sufficient to endanger life by pressure upon other organs, their clinical importance is sufficiently obvious.

I may be allowed in passing to remark upon the vascular supply of the organ, which is said to be far beyond the requirements of its tissues, and received from four large arteries: the two superior thyroid from the external carotid, and the two inferior thyroid from the thyroid axis, assisted sometimes by a fifth, the median thyroid, from the innominate or arch of aorta. Mayer estimates that the thyroid receives as much blood as the forearm; others, that the arteries of the thyroid are eight times as large as those of the brain, considered relatively to the weight of the respective organs. At all events, the organ is so vascular that incisions made into it are often attended by dangerous and even fatal hemorrhage. The vascular supply is changed by disease. It is augmented, and I mistrust it may be lessened, the vessels diminished in size and changed in distribution, so that a diseased gland may in some cases be more easily and safely extirpated than a healthy one.

I only desire in this paper to call attention to what I regard as established, that some goitrous tumors may be extirpated with the knife, if other means fail, with reasonable hope of success.

(*b*) NOSE, MOUTH, AND THROAT.

Removal of Hardened Secretions from the Nasal Passages.

Dr. THOMAS F. RUMBOLD, of St. Louis, Mo., says of this subject, in the Chicago *Medical Journal and Examiner*, August, 1877 :—

For those patients in whom the muco-purulent secretions have become so hardened, and adhere so tenaciously to the mucous membranes of the superior portions of the nasal and pharyngo-nasal cavities that their removal cannot be accomplished by force of water inhaled from the palm of the hand, such other means must be resorted to as possess the required force.

There are three indications that must be fulfilled by the means employed to accomplish the removal of these hardened secretions, and cleansing the surface covered by them.

The first of these indications is that, of itself, the means should cause no irritation.

All who have had even a few years' experience in the treatment of this most tenacious disease, will see the necessity of making this indication a prominent one; one that is to measure not only the value of the means for making applications to these highly sensitive surfaces, but to measure the value of the medicaments also that are to be applied to them. It must be constantly kept in mind that increase of irritation and decrease of chronic catarrhal inflammation can never go on together.

The second indication: The means employed should throw the irrigating fluid upon every portion of the diseased surfaces.

The third: Force enough should be employed to remove the secretions from their places of lodgment.

It is almost needless to say, that whatever means may have been recommended which will not fulfill these three important and indispensable indications should be discarded.

In discussing the value of the means employed, I will take such only of them as have been recommended by high authority during the last few years.

The posterior nares syringe has been recommended and employed for this purpose, but even when patients have learned to handle this instrument carefully, it so frequently causes, by its application behind the soft palate, so much irritation that they soon refuse to use it.

The apparatus that is most commonly resorted to in such cases is the Weber nasal douche. On account of the frequency of the employment of this means, both by the professional and non-professional, I will discuss its merits and demerits at some length, while examining as to whether it can or cannot fill the three indications that I have named.

That Dr. Thudichum made a very great mistake when he said that the irrigating fluid thrown by this douche touched every part of the nasal cavity (the second indication) may be proved most conclusively by the following experiment: First, cover the mucous membranes of both nasal cavities of the person upon whom the experiment is to be tried, with finely-powdered starch, by insufflation, both in front and from behind the velum palati; next, incline the head forward, as recommended by Thudichum, and pass a weak solution of iodine and iodide of potassium through the nasal passages by means of the douche. The iodine solution will either discolor or wash away all of the starch within its reach; the discoloration will be the characteristic blue of iodide of starch. The effect of the washing may be seen by reflecting natural light upon a pharyngeal mirror, placed under and behind the pendant soft

palate, and by inspection through the anterior nares. The washed or discolored portion of the mucous membrane, and the remaining portion covered with white starch, will show that the greatest height that the iodine solution reached in the antero-superior portion of the cavity was only a little above the anterior extremity of the middle turbinated process (*b*, Fig. 1), and that only below a line drawn from this point to the lower surface of the posterior nasal opening (*e*) is washed, and that all of that portion of the surface above and posterior to that line (*d d*) is not washed, the white powdered starch remaining plainly in view. In other words, the solution, flowing into the nasal cavity, rises until it reaches a level that is on a horizontal line (*e*) with the inferior surface of the posterior nasal opening of the side in which the liquid is introduced; then, instead of rising higher, upon the introduction of more fluid, it will flow around the posterior border of the septum narium, over that portion of the soft palate which joins the hard palate, into the other nasal opening, and thence out through that passage.

FIG. 1.



Antero-posterior section of the head and face, showing the turbinated processes, *a*, *b*, *c*; *d d*, the location of the encrusted secretions in the highest portion of the nasal cavity; *e*, the highest the water attains in the nasal cavity while using the Weber douche, with the head inclined forward. The dotted line indicates the position of the posterior border of the septum nasi.

Thus, it is seen that, instead of fulfilling the second indication, *i.e.*, "touching every part" of this cavity, as asserted by Dr. Thudichum, but a little more than the lower half of it is touched, and it is that half, too, which is very rarely encrusted or requiring treatment; the upper half, the region whence all of the secretions flow that find lodgment in the inferior portion of the passage, remains untouched, and hence uncleansed.

In the other nasal passage, the floor only, not the middle meatus also, as Dr. Thudichum has made us believe, will be washed by the liquid as it escapes.

Although I believe that I have plainly demonstrated that the Weber douche is inefficient, and might consider that this is a sufficient reason for discontinuing its use, yet I will show that in addition to its inefficiency, it has an injurious effect upon every patient that employs it, by its insidiously spreading the chronic inflammation upon unaffected parts, and that upon some its injurious effects manifest themselves suddenly and severely.

Before instancing the cases in which the injuries were sudden and severe in character, I must say that the number of persons thus affected is remarkably small in proportion to the large number who have used and are daily using this method. There certainly is a very large number of persons who are employing this means for cleaning their nasal passages; as fast as one set discontinue its use, after finding out that it does not fulfill their expectations, another set commence it, and yet the cases of acute inflammation of the cavities connected with the nasal passages that arise from it are not at all frequent. I am now treating a patient who commenced to use this douche in March, 1871, washing his nostrils by it from one to three times, and sometimes as high as four and five times daily; he very rarely passed a day without using it, making in all, certainly, about three thousand applications. Twice during this period he experienced painful sensations in his ears; four or five times

ne experienced a painful sensation in his left cheek, showing that the left antrum of Highmore was injuriously affected by it.

It is seldom that I treat a catarrhal patient who has not, in his endeavor to rid himself of this disease, used this douche a great many times, yet it is seldom that complaint is entered against it, on account of any injury received from it, that is, one that the patient or his physician would call an injury; I mean such an injury as would develop itself suddenly, or show itself by symptoms of a marked character; so small, indeed, is the number of cases whose ears and sinuses receive injury of this character, that, in my opinion, were the method as effective as claimed by Dr. Thudichum, it should not be discontinued on account of its effect upon these cases.

It is not because this method now and then lights up an acute inflammation in comparatively few cases out of the thousands who use it daily, almost without instruction or warning, that I would condemn it, but it is, on account of the injury that the water does to the healthy surfaces, without at the same time benefiting the unhealthy or catarrhal surfaces.

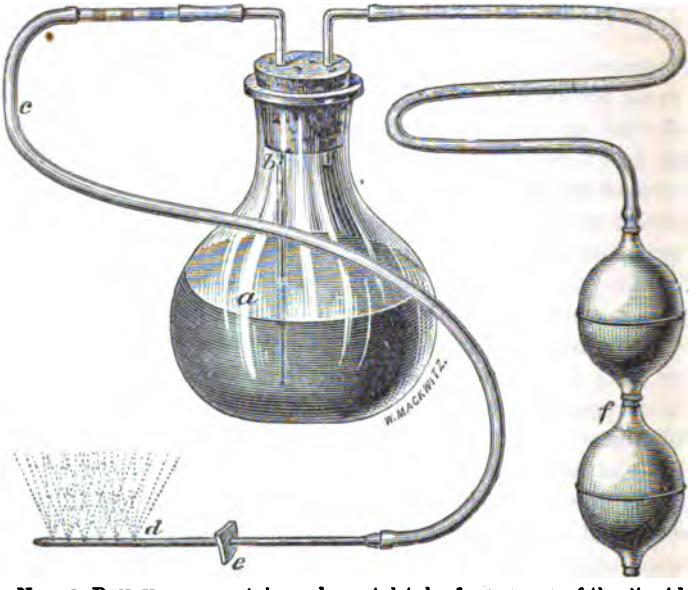
The application of water or of any fluid, except mucus, to the nasal cavities, is always productive of more or less injury to its healthy mucous membranes, but this injury is more than compensated, if, by the application, vitiated and irritating secretions are removed, which could not have been done without its aid; but if these secretions are not removed during its application, then the injury done by the water to the healthy parts is not compensated for by any benefit done to the inflamed parts, but, on the contrary, the condition of the patient is gradually, almost imperceptibly, made worse by the healthy mucous membrane being prepared, by the frequent absorption of water, so that it more readily takes on a catarrhal inflammation. This is the injury that should deter every one from employing this means. I am quite certain that fully ninety-five per cent. of my patients, who have used this douche, have not only maintained their catarrh by it, but by it caused the chronic inflammation to extend to other parts of the cavity, as well as to other cavities.

I have noticed a fact connected with the history of nearly every one of my cases, which to a certain extent mitigates the blame that is attached to this method, that is, to its exciting acute inflammation in distant parts. The fact alluded to is, that their ears and antra were in a more or less inflamed condition before the application of the douche. In all ear cases, even if there had been evidences of a diseased condition—except in those who suffered from perforation of the membrana tympani—if they desisted from performing the act of deglutition, thus preventing the entrance of water into the middle ear, the employment of the douche did not produce acute inflammation. The ears of those patients whose membrana tympani were perforated, were unaffected by the douche, even if the act of swallowing was performed while the water was in the pharyngo-nasal cavity. I think that it is barely possible for water to enter a middle ear, if its membrana tympani is perforated. I have not seen nor heard of a case in which it did do so. I have also noticed that those patients whose ears had not manifested any symptoms of a diseased condition previous to the use of the douche, did not volunteer complaints of its bad effects, even when the water did enter their ears. But, from my observations, I should expect that in every patient whose ears were affected by an acute inflammation—except in those in whom the membrana tympani were perforated—all of the acute symptoms would be suddenly aggravated, if they performed the act of deglutition while employing the douche.

Even if it were possible to determine those patients who should not use this method of cleansing the nasal passages, this fact ought not to be urged against its employment, if it had a salutary effect on all of those cases whose ears and antra were uninjured by it; but when it proves a serious injury to some patients, and when it signally fails in every patient to reach the locality in which the disease originates, thus returning no compensation for the injury that it must do to uninflamed membranes, by their absorbing water, then, most certainly, it should be discontinued.

After observing the inadequacy of the Weber nasal douche, I devised an appa-

FIG. 2.



CATHETER NASAL DOUCHE.—*a*, container; *b*, metal tube for passage of the liquid—the *letter* is placed beside a small aperture in the side of this tube, which allows the entrance of air; *c*, hose composed of rubber and glass tubing; *d*, catheter with foramina, for the escape of air and liquid; *e*, triangular piece of soft rubber; *f*, India rubber air bulbs used to force air into the container *a*.

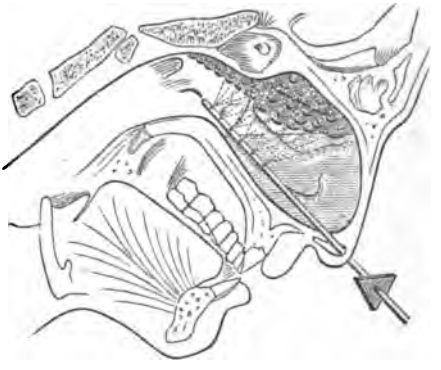
ratus in June, 1867, which I have called the catheter nasal douche (Fig. 2). It throws a shower or coarse spray of liquid from the floor of the nostril upward, reaching every portion of the irregular surface of the cavity, making perfectly efficient and direct local application. When warm salt water is used, the only sensation it occasions is that of tickling, which is never objected to by the patient.

The apparatus consists of the following parts: The vessel that contains the cleansing fluid is a flask shaped bottle (*a*, Fig. 2) of a pint or a pint and a half capacity; into the soft rubber stopper of this bottle are inserted two metallic tubes, whose outer extremities are bent at right angles, and turned in opposite directions. One of these tubes is short, but long enough to pass through the stopper, and has attached to its outer extremity a pair of India rubber air bulbs (*f*); the other metal tube (*b*) almost reaches the bottom of the container. Attached to the outer extremity of this tube is a hose (*c*), about twelve inches long, a part of which consists of soft rubber and a part of glass tubing, the latter section of tubing is about three inches long, and is inserted in the first third of the hose. To the outer extremity of the hose is fastened a No. 5 or No. 6 flexible catheter (*d*) six inches long, at the further end of which are made five small openings in a line with its axis, three-eighths of an inch apart. The free extremity of the catheter is closed. A perforated triangular plate

(*e*) of soft rubber, with one inch borders, is slipped on the catheter about three and a half inches from the closed extremity. This plate will prevent the liquid from flowing on the operator's hand, and at the same time it will serve as a guide both in regard to the direction of the stream and the distance that the instrument is inserted into the nostril (Fig. 3).

The metal tube, whose lower extremity dips into the fluid in the container, has a small aperture in its side, just under the rubber stopper. This aperture is to allow air to enter during the passage of the liquid up the tube, the effect of which is to cause it to contain beads of air and fluid alternately. These beads of air and liquid should be equal in size, about half an inch long. When the air and solution escape from the opening of the catheter (*d*), it will resemble a coarse spray. The relative size of the beads and water may be ascertained by suddenly arresting the current in its passage through the hose, by compressing the rubber tubing near the catheter, and inspecting at the glass section of the hose. If the air beads are relatively the larger, then the aperture (*b*) under the rubber stopper, in the long metallic tube, is too large; if the air beads are smaller than the water beads, then the aperture is too small. In either case the aperture should be so made that the beads will be about equal in size.

FIG. 3.



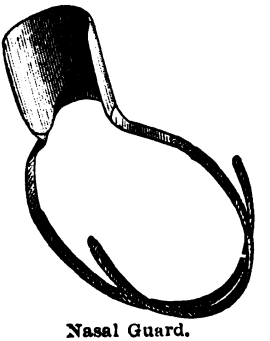
Antero posterior section of head, showing the introduction of the catheter and the direction of the coarse spray.

In its application the catheter is introduced horizontally into the nasal cavity to be cleansed (Fig. 3). The coarse spray or spattering current of liquid and air is made to pass directly upward; by slight rotation of the instrument on its axis, the stream will wash and blow the secretions from their lodging places under the turbinated processes, and in the highest portion of the cavity, in a much milder manner than a steady stream from any form of a syringe applied either in the anterior or posterior nasal openings, and in a much more efficient manner than the Weber nasal douche.

The cleansing process may be greatly assisted by the patient closing the nostril not treated, and then giving a quick and forcible blow out of the one that is being washed; this will expel the liquid and everything loose with considerable force.

A nasal guard (Fig. 4), fitted on the head so that it may be placed under the nose, will prevent the irrigating solution and the muco-purulent secretion from falling on the lips, and from soiling the clothing at such times as the patient is blowing his nose.

FIG. 4.



Nasal Guard.

This apparatus, if care is taken not to force too much air into the reservoir, fills all three of the indications that are required to properly cleanse these cavities. 1. It does not produce irritation; 2. It throws the irrigating fluid to all parts of the nasal cavity, even under the turbinated processes; and 3. It has force enough to remove all of the hardened secretions, and cleanse the surfaces after they are removed. This force is completely under the control of the patient or the person employing the apparatus, so that the

coarse spray of air and liquid may be caused to strike the secretions with such force only as is required to remove them, and, after the removal, the force may and should be lessened, to complete the cleansing.

The amount of fluid that is employed is a matter of great importance. We must keep in mind that the mucous membranes, especially that portion of them that are in a healthy condition, absorb to their injury more or less of every liquid that comes in contact with them; for this reason the application of the water should be discontinued just as soon as the hardened secretions are removed, even if the washing process produces a pleasing sensation. If the washings are protracted, the healthy mucous membranes in the lower portion of the nasal cavities will absorb so much water that they will become swollen, in which condition they are more liable to be injured by the influences of out-door atmosphere.

If at any time the force of the stream is such as to produce a painful sensation, which lasts beyond one or two seconds, then the washing should be discontinued, even if the passages are not entirely cleansed. If the disagreeable symptoms pass off in a few seconds, the washing might be commenced again, but with such force of the stream as to produce no disagreeable sensation; if the pain occasioned by the first effort lasts beyond one minute, then the washing should be deferred for several hours.

The washing should be done in the morning before breakfast, and repeated often enough to keep the passages free of hardened secretions, but each time using as small an amount of fluid as will accomplish the cleansing process.

As soon as the secretions cease to become hardened, the washing by the catheter nasal douche may be discontinued, and the inhalation of the water from the palm of the hand substituted, as the latter mode is sufficiently effective, and is accomplished with much less trouble.

The irrigating solution is made by dissolving in a pint of water that is a little warmer than blood heat about one teaspoonful of common table salt. Patients will soon learn from experience whether or not this is the proper strength and temperature. Water either without salt or with too much in it, produces more or less pain, yet, with the right quantity (which varies slightly with different individuals), it produces a pleasant, bland sensation. Cold water causes a disagreeable as well as an injurious effect.

For those cases in whom the secretions are offensive, five grains of salicylic acid should be added to the pint of solution.

(*c*) THE EYE AND EAR.

Drainage of the Eye in Cases of Detached Retina.

The *Deutsche Zeitschrift f. prakt. Med.* of August 18th, publishes an abstract of a paper read by Dr. HERMANN COHN on this subject, before the Silesische Gesellschaft für Vaterländische Cultur. He remarked that detachment of the retina, especially in cases of high myopia, has hitherto been regarded as one of the most incurable diseases of the eye. Amongst twenty thousand cases of ophthalmic disease that had fallen under his notice in the course of ten years, there had been one hundred and ninety-one, or about one per cent., of cases of separation of the retina. Sichel, Kittel, and Arlt endeavored to effect a cure in such cases by the introduction of a needle through the sclerotic. Graefe not only punctured the sclerotic, but divided the retina, with the object of allowing a communication to be established between

the fluid subjacent to the retina and the vitreous. This proceeding, though occasionally brilliantly successful, was, however, found to be not unattended with danger of cyclitis and inflammation of the vitreous, and it fell into discredit. Cohnheim, Lasinsky, and Samelson have observed cases where a cure resulted from the employment of internal means, by pressure, and by confinement in a dark chamber. Such a result, however, is exceptional. About six months ago Wecker suggested the trial of drainage of the eye by means of the introduction of a loop of gold thread through the sclerotic and under the detached retina. He applied this method in twenty-six cases, but has not published them. Cohnheim has tried it only in four cases, the myopia varying from ten to twelve dioptrics, and has in all instances obtained excellent results. The gold wire should be very fine. In the course of these experiments, Cohnheim has satisfied himself that the human eye can carry for months a gold wire, of one-third of an inch in length, without the slightest reaction being excited or inconvenience felt. Detachment of the retina may, by this means, be immediately prevented from continuing, even after it has been of three years' duration. The retina, as soon as it has become reapplied, becomes again immediately capable of perception, even after the lapse of three years, so that the field of vision recovers its normal extent. He goes on to say that only the sense of space returns, but not the perception of color. Blue-blind and green-blind eyes at the time of detachment remain blue-blind and green-blind. After some time a separation is discernible, but it is flatter, more rugose, and no longer vesicular; and this, by slight movements of the gold drain, can again be diminished. Cohnheim, finally, thinks the proceeding of drainage of the eye especially adapted for cases of sub-retinal cysticerci. In no instance was any inflammation of the eye or impairment of the pre-existing amount of vision observed. It has also the advantage that it does not interfere with general methods of treatment.

The Treatment of Meniere's Disease.

In a lecture by M. CHARCOT, of Paris, given in the *Medical Press and Circular*, July 4, 1877, he says:—

In my lecture upon Ménière's vertigo, delivered in 1874, I promulgated some therapeutic considerations. I stated, among other things, that *vertigo from aural disease*, even when most inveterate, got well sometimes spontaneously when the patient became completely and irreparably deaf, and ceased to hear the whistling. I asked myself, also, if it would not be possible to bring about this desirable result by surgical intervention. I recommended also the dotted cautery over the mastoid process. The method I have adopted in the case before you is both much more simple and much less heroic.

The idea occurred to me that, by the aid of sulphate of quinine, which every one knows produces noise and buzzing in the ears more or less pronounced, one might succeed, perhaps—by prolonging sufficiently the employment of very large doses—in producing durable modifications in the function of the auditory nerve. The result, you will see, has justified my conclusions.

Giraud —— has taken the sulphate of quinine in the dose of ten to fifteen grains daily, steadily, except for a few interruptions of some days, necessitated by gastralgic attacks, during the whole of the month of May and of the month of June, and the first twenty days of July.

Toward the beginning of June (that is to say, about five weeks after the treatment had commenced) it was remarked that for several days past the patient might

be stirred in her bed, and even moved from one bed to another, without uttering cries of distress, as she used to do regularly on such occasions.

Being interrogated, she informed us that the shrill whistle had, about the same period, at first diminished in intensity, then completely ceased, and in the same degree the great vertiginous crisis. The permanent buzzing sound had been replaced by one of quite a different character, and which appeared referable to the action of the sulphate of quinine. Encouraged by these first results, I urged her to rise, and to try to hold herself upright and to walk. She at first refused energetically, dreading a return of the vertigo, and considering, moreover, the attempt to be impracticable, not to say more. I insisted; finally she consented, and one fine day, supported by two aids, she succeeded in achieving, not without great effort, two or three steps rendered very difficult, apparently, by an excessive sensibility of the soles of the feet rather than the vertiginous state. I required the experiment to be repeated every day. The improvement was rapid, for about the 20th of July, at which date the exhibition of the sulphate of quinine was stopped, she had already been able several times, with a sufficiently assured gait, and without any other assistance than that of a cane, to make the rounds of this vast hospital. The malady, since this period, has not made any aggressive return, and you can judge for yourselves that the attitude of the body and the gait are not very different in her from what they would be in a person in good health. I will add that she is neither more nor less deaf than before. It is not, then, you see, by inducing complete paralysis of the auditory nerve that the sulphate of quinine acted in the case.

The fact to which I have just called your attention is not unique of its kind. I could quote several others in which the happy influence of the sulphate of quinine has been proved.

(*d*) ABDOMEN.

On Latent Cancer of the Stomach.

In an important thesis, lately published, on this subject (abstracted in *Journal de Médecine et de Chirurgie Pratiques*, April, 1877), M. CHESNET, basing his conclusions on numerous observations, brings to light the fact that not only may cancer of the stomach reveal itself by no other signs than a little dyspepsia, or by a cachexia of which we cannot ascertain the cause, but that it may produce ascites, like cirrhosis, anasarca, like Bright's disease, and that it may perfectly simulate tuberculosis, chronic bronchitis, cardiac affection, etc.

The author has divided his observations into ten categories. In the first, he deals with cases in which the malady has been absolutely latent, nothing during the life of the patient having drawn attention to the stomach, whilst the lesions found there by chance after death were much advanced. In the second category are found the cases in which the only symptom observed was dyspepsia. In the third class, uncontrollable vomiting during pregnancy led to the idea that one only had to deal with the ordinary accidents of this condition, whilst they were maintained by a cancer, probably pre-existent. In another class, M. Chesnet places a case in which the patient presented, as the morbid symptom, anasarca, and died of purulent pleurisy. There was no albumen in the urine; this fact, as well as another given by M. Rendu, shows that, in cases of anasarca, accompanied by cachexia without albuminuria, we may suspect cancer of the stomach, even when there are no gastric symptoms. The ascites due to a latent cancer of the stomach has often caused a

false diagnosis, either of cirrhosis or tuberculous peritonitis, as many cases ranged under the succeeding category show. In the form of latent cancer of the stomach, called thoracic by M. Chesnet, very different cases may occur. Thus, at first, we may suppose that there is pulmonary tuberculosis, and then that there is nothing serious in the lungs, but that the stomach is the seat of the lesion. M. Bucquoy, however, did not commit this error in a case where a patient presented most of the usual symptoms of tuberculosis, without auscultation revealing serious pulmonary lesions; basing his opinion on the cachectic state of the patient, not regarding the state of the lungs, this physician, although there were no gastric symptoms, diagnosed a cancer of the stomach, which was verified by the necropsy. In other cases, where pulmonary tubercle and cancer of the stomach co-exist, it is the last which, though the most important, escapes observation. Lastly, this cancer may have for a consequence cancerous angioleucitis of the lungs, which betrays itself by grave symptoms, as cyanosis and dyspnœa, which prevent the cancer of the stomach from being recognized. There are, also, cases in which palpitations, dyspnœa, even pericarditis by propagation, have been considered, in persons affected with cancer of the stomach, only as the expression of a primary cardiac affection.

Some patients present gradual emaciation, progressive anæmia, a slow cachexia without manifest local symptoms, and differing much from the cancerous type of cachexia; in these cases, we must always think of cancer of the stomach. Lastly, in some cases the cancer is multiple, and is very manifest in other parts than the stomach; this last organ is almost always neglected in the diagnosis.

Why, then, is it that there are cancers which give rise to such slight symptoms, while others signalize their presence in so unmistakable a fashion? It is difficult to answer this question; it is, however, probable that their seat is in a part far removed from the orifices of the body; the reactional state of the subject (idiosyncrasy, age, etc.), and the more or less altered condition of the mucous membrane in the vicinity of the lesion, are the principal elements of the problem. However this may be, it is established that the manifestations of latent cancer are, as local symptoms, anorexia, gastralgia, vomiting of food or glairy mucus; as general symptoms, œdema, local or general, emaciation, loss of power; and, lastly, as secondary phenomena, diarrhœa or constipation. All these symptoms, whether single or combined, when they occur in an obscure pathological condition, should induce careful examination of the stomach, and, in certain cases, would even warrant the diagnosis of cancer of that organ.

(*e*) GENITO-URINARY ORGANS.

Foreign Bodies in the Bladder.

The following remarkable case is reported in the *Medical Press and Circular*, May 2d, 1877, by Mr. WILLIAM STOKES, F.R.C.S.:—

A young man, aged twenty-one, by occupation a laborer, was admitted into the Richmond Hospital, under my care, on the 17th of last September, suffering from the effects of a beating which he had received on the day in question. He stated that he was knocked down and severely kicked, chiefly about the genital organs, and that since these injuries were inflicted he had been unable to pass water. On examination by the resident surgeon, it was found that the bladder was greatly distended, and he at once passed a medium-sized catheter and drew off a considerable quantity of apparently normal urine.

On the following morning I saw the patient, and could not satisfy myself that there was very distinct evidence of the severe contusions he stated he had received. In fact, the only abnormal condition I could discover was an enlargement—not a very great one—of the prostate gland, not by any means sufficiently great to account for the retention of urine. However, he stoutly maintained his total inability to pass water; and, accordingly, a catheter was again introduced, and the bladder emptied. This had to be repeated morning and evening, and various means were adopted, having for their object a restoration of the supposed loss of power of the bladder to expel its contents. However, all our efforts were in vain, and the urine had to be drawn off twice daily. This went on for some months, during which time the patient had three epileptic seizures, the conviction growing stronger in my mind every day that he was not, by any means, in so helpless a state as he wished us to believe. I expressed this opinion to Mr. Coury, our resident surgeon, and he discharged the patient from the hospital.

Two days subsequently, on going round my wards, I was surprised to see our patient again, and learned he had the night before been brought to the hospital in a state apparently of great agony, and with the bladder again distended. At this time he commenced to pass the catheter for himself. On February 8th, after passing the instrument, he stated, the bone nozzle of it came off, and the catheter slipped back into the urethra. In less than ten minutes after this the resident surgeon saw him, and, after careful external examination, could find no sign of the instrument. I was then sent for, and passed an ordinary medium-sized calculus sound, and struck the foreign body.

The next day I passed a small-sized lithotrite, kindly lent to me by Mr. Porter, and, fortunately, succeeded in seizing the foreign body about its centre, and, without much difficulty, removed it. I then gave orders that the patient should not be allowed to practice auto-catheterization again.

On February 13th I was astonished to learn that the patient had again allowed an instrument to pass into the bladder. On my questioning him as to why he had done this, the answer he gave confirmed me in the opinion I had already formed, that his mind was unsound. He stated he considered he had derived so much benefit from the operation performed on February 8th, that he wished to have it repeated, and accordingly he passed into his bladder a No. 7 catheter, which he had got from another patient.

On February 14th, I again passed in a lithotrite, and experienced some difficulty in grasping the foreign body, which I believe to have been coiled round the neck of the bladder. However, I eventually succeeded in doing so, and extracted this large-sized instrument. The patient a few days subsequently left the hospital.

VII. DISEASES OF THE SKIN.

Morphœa Alba or Leuce.

At a meeting of the Royal Medical and Chirurgical Society of London, last March, Mr. GEORGE GASCOYNE presented an article on the above-mentioned disease.

His paper referred to the threefold division of leuce as recorded by Hensler, *i.e.*, into morphæa alba, leuce, and tyria. It was declared to be superfluous, as the same

morbid process reigned in all, and they were all three distinguished by a red areola. The morphæa alba had never been considered otherwise than as a surface lesion; and the idea thus entertained of it was accounted for perhaps by a vice of origin, the term being first introduced in early translations from the Arabic, serving then as equivalent for *alphos*, which we now account to be psoriasis. At the present day, it had supplanted the leuce. The consequence of this had been that many important cases were disinherited of their name and position, and were recorded as anomalous. Two such were gathered from the experience of Sir Benjamin Brodie; one superficial, and the other deep. They were regarded by that eminent surgeon as cases of cutaneous gangrene; but, in accordance with the classification of Alibert, they might be grouped with leuce tyria. Cases were laid before the Society, which were alleged to resolve many points in the natural history of leuce; among others, that curious exfoliation of the epidermis which had been likened to the shedding of a serpent's skin (*à tyro serpente*), showing that this might occur in the most chronic and superficial cases, being little more than an accident in the disease, and no true test of its severity. The position was controverted that leuce was to be distinguished from lepra and elephantiasis by "absence of roughness, erosion, and pruritus." It was stated that, agreeably to the definition of Swediaur, it might be attended by crusts, occasionally of ponderous character, but still with a notable difference from those of psoriasis.

Acne Rosacea Treated by Ointment of Chrysophanic Acid.

Mr. BALMANNO SQUIRE, M.B., London, Surgeon to the British Hospital for Diseases of the Skin, gives the following case in the *Medical Times and Gazette*, June, 1877:—

A lady, aged forty-five, residing in one of the Midland counties, had been affected with acne rosacea for about a year and a half, when she came up to London to be treated for it. She is approaching the menopause—that is to say, for the past two or three years her periods have been irregular. However, her general health is apparently perfect, and she declares that she has always enjoyed the best of health. She is a brunette of sturdy build and hearty appearance. Her face is her only misfortune. This region presents not merely the blotchy patches of discoloration which are characteristic of some varieties of acne rosacea, nor that copious sprinkling of minute pimples which represents another common phase of the disease, but rather what may be termed the tuberculous variety of acne rosacea—that is to say, the papules, or rather tubercles, are individually large; not that their sebaceous core forms any considerable portion of their bulk (as is wont to be the case in the indurated phase of "acne juvenilis"), but that the elevated induration which encloses the small core is notably developed. These tubercles (several of which are of the size of split peas, although they are mostly smaller) occupy very abundantly the forehead, the cheeks, and chin, and also that portion of the skin of the neck which lies immediately under the lower border or "base" of the lower jaw.

She was treated with chrysophanic acid ointment as an external application to the face, and with glycerole of nitrate of bismuth as an internal remedy. No other remedy, external or internal, was used from first to last. She commenced treatment on January 19th, 1877. On February 27th she presented herself quite free from any trace of her former eruption. I attribute the alteration she experienced purely to the action of the chrysophanic acid ointment. There was no indication whatever for the exhibition of bismuth; the patient's digestion was in no way out of order·

but I was engaged at the time in making further observations on the effect of my glycerole of the nitrate of bismuth.

In the case of this patient, a dose of the glycerole, containing four grains of the nitrate of bismuth, given three times a day for a few weeks, produced no appreciable effect of any kind.

As to the ointment, it consisted at the first of twenty grains of chrysophanic acid dissolved in an ounce of lard at the temperature of an oil bath. For the last ten days of the treatment, however, the strength of the ointment was raised to that of forty grains of chrysophanic acid to the ounce of lard. The ointment in either case was regularly, three times a day, rubbed well in all over the face, avoiding only the eyelids and the lips. From the beginning to the end the patient never experienced any smarting from this energetic treatment. However, occasionally the face became a little puffy, as if slightly swollen. Throughout this treatment the face became more or less stained by the action of the ointment, but it was not *very* much stained. The complexion of a field laborer about autumn time is often quite as dark as this patient's face was at any time of the treatment. The stain proved, of course, quite transient, passing away completely after a few days' discontinuance of the ointment.

VIII. GONORRHŒA AND SYPHILIS.

On Visceral Syphilis.

Mr. JAMES R. LANE says in a lecture published in the *Lancet*, June 23d, 1877, on the syphilitic affections of the viscera:—

In this direction most of our present knowledge is owing to the labors of physicians. In former times, physicians used to look upon venereal disease as an unclean thing, with which they would rather not meddle, and the subject therefore fell almost exclusively into the hands of the surgeons. When the physicians began to direct their attention to it more closely, there were some who thought that in doing so they were intruding upon the province of the surgeons. It was an intrusion, however, from which nothing but good was likely to arise to both sides; much good has already arisen from it, and much more, I doubt not, will be forthcoming in the future. I do not think it is sufficiently remembered that we owe to a physician, the late Dr. Robert Williams, of St. Thomas' Hospital, the introduction of the iodide of potassium in the treatment of syphilis, without doubt the greatest improvement which has been effected in this country. Some of us are called surgeons and some are called physicians, and it is convenient, perhaps necessary, that it should be so: but the republic of medicine is one and indivisible. Specialism in a limited sense may be admissible, and even advantageous, but specialism in the spirit in which it is too often pursued is one of the worst features of the profession in our time. Anything like a narrow specialism in a disease such as we are discussing, with its complicated and wide-spreading ramifications, cannot be too strongly condemned.

In this country it was Dr. Wilks who, some fifteen years since, took the lead in pointing out the injurious effects of syphilis on internal organs. Modern research, he then said, has been mainly in the direction of discovering a wider influence for the venereal virus, and tends to show that the internal organs may be affected equally with the external; "not only the cranium, but the brain within it, or the nerves; not only the muscles of the limbs and tongue, but the heart; not only

the pharynx, but the œsophagus; not only the larynx, but the trachea, bronchi, and lungs; also the liver, spleen, and other viscera." He thinks that the fibro-plastic material deposited in various organs in infiltrated though circumscribed masses, usually called gummata, belongs to the stage of true syphilis, but that this may leave behind a morbid state of system tending to fatty degeneration, and especially to the changes known as lardaceous or waxy, which latter should alone be looked upon as sequelæ, and to them alone should the term tertiary be applied.

Dr. Wilks does not approve the usual division of the disease into stages. He has recently said: "Either a man has syphilis or he has not; he either has poison in him producing all these peculiar morbid products or he has not." And he believes "that all these visceral changes which are observed are due to the true syphilitic process, and take place at the same time." Most of us have been in the habit of looking upon these deposits as belonging to the later or tertiary stage, but the opinion expressed by Dr. Wilks is well worthy of consideration, for the period at which these deposits may occur is a point of great interest and importance. Mr. Hutchinson has well said that "the visceral pathology of the secondary stage forms a chapter in the history of syphilis which has not yet been written, and for which we have but few data." We have, most of us, no doubt, as surgeons, occupied ourselves too exclusively with those outward symptoms which force themseves upon our observation, thinking little of its possibly deeper and more vital influences; but it is to be hoped that, if they frequently coexist, both are equally amenable to the beneficial influence of treatment or to the still more beneficial influence of time.

On Syphilitic Affections of the Ear.

The following case is reported in the *British Medical Journal*, October 6th, 1877, by Mr. G. P. Field, Aural Surgeon to St. Mary's Hospital, London:—

E. N., aged forty-two, a carpenter, came to me at the hospital December, 1876. He had a hectic appearance, quick pulse, and other symptoms of severe constitutional disturbance. Two-thirds of the auricle of the left ear had sloughed away, leaving a large round hole, in which, however, the external auditory meatus could not be distinguished. There was a large quantity of very offensive discharge, and he described the pain as very severe. This serious state of disease had commenced, he said, three months previously, from pricking his ear with a pin, and since that time he had been treated with different tonics, and a great variety of lotions and ointments, without any relief; in fact, the ulceration was progressing all the time. From the condition and history of the disease, I diagnosed a syphilitic taint, and prescribed five grains of iodide of potassium, with bark, three times a day. The ulceration was thoroughly cleaned by poultices, and then dressed with an ointment composed of a drachm of unguentum hydrargyri nitratis with five drachms of zinc ointment. Rapid improvement took place, and in three weeks the sore had quite healed, leaving a respectable-looking ear, although, of course, there was much loss of tissue. During the treatment, the external meatus was kept open with pieces of lint; and when he left the hospital, although the external meatus was very small, yet the hearing was good.

This case illustrates how a local disease in a patient with syphilitic taint may resist all ordinary treatment until the specific nature of the case is recognized, and shows how soon such a case is relieved when suitable remedies are employed. This man might have been saved the loss of part of his ear, and also a dangerous illness, if the syphilitic features of the case had been diagnosed at an earlier period.

On Syphilis of the Eye.

In a lecture by Mr. HAYNES WALTON, of St. Mary's Hospital, London, in the *Medical Times and Gazette*, September 15th, 1877, he says:—

The eye is an organ of special sense, in which the morbid influences of syphilis, as an inherited effect, are frequently and strongly developed. The three cases of this ocular juvenile constitutional poisoning now in the hospital shall supply us with stock material for this day's clinical remarks.

In the first place, I should tell you how the bad inheritance is derived, whence and under what conditions it is received. It comes from the one or the other parent. A father or a mother, with a primary sore, or with constitutional syphilis, may beget a child and transmit syphilis to it. After impregnation from a healthy male, the woman may receive syphilis by inoculation from another man who has a primary sore, and give it to the fœtus in her womb. A father may beget a syphilitic child without inoculating the mother directly, although she may be secondarily syphilized by absorbing the diseased secretions from the diseased fœtus. A fœtus and its membranes may show the strongest marks of syphilitic implication.

In all the cases before us, an ophthalmitis, *i.e.*, inflammation of all the tunics of the eyeball, has prevailed. Now as to the evidence of these eye affections being syphilitic. Case 1 was a first child; Case 3 was the child that lived, the first-born having been a miscarriage.

It is usual in constitutional syphilis that the first or the earlier children become diseased, and it is very common for an infected fœtus to be prematurely expelled. There were, too, in both, marks of sores about the mouth and anus. But all the patients had the notched and undeveloped teeth—Hutchinson teeth—so characteristic of inherited syphilis.

The usual typical commencing symptoms of inherited syphilis in infants and children are these:—The infant is attacked or is born with copper-colored eruptions, snuffles, aphthæ of the mouth, and mucous tubercles about the genitals or anus. The eyelashes are exfoliated, and the nails may be unhealthy. When the second teeth appear, the undeveloped peg-like or notched condition of the front and lateral incisors is seldom absent.

The time of appearance of inherited syphilis in the eye is frequent in infancy, and if not then, certainly in childhood.

There is no essential difference between the symptoms of inherited syphilitic ophthalmitis and secondary syphilitic ophthalmitis in the adult, except in the former being less acute and severe. The surface of the eyeball, the sclerotica, and the conjunctiva, are seldom very red. The as yet undeveloped eyeball may account for this.

Treatment.—The principles for this are the same as for the same disease in the adult. Mercury is the chief remedy. In infancy and early childhood we must resort to inunction, and rub the drug into the soles of the feet, the axillæ, the groins, or the calves, from a scruple to a scruple and a half of the unguentum hydrargyrum being used daily. My plan is to give the chalk and mercury with the extract of hyoscyamus, in the proportion of one, one and a half, or two grains of the former, to two, three, or four of the latter, two or three times a day, taking care to avoid purgation, depression, or salivation, by lessening the frequency of the taking, or altering the proportion of the pill. But we must not make an abstraction of the disease, and ignore other curative measures. Tonics and stimuli are often needed along with it.

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OF

MEDICAL SCIENCE:

A SYNOPSIS

OF

THE AMERICAN AND FOREIGN LITERATURE OF MEDICINE, SURGERY, AND THE COLLATERAL SCIENCES, FOR SIX MONTHS.

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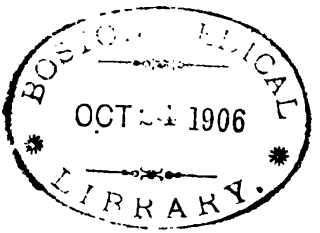
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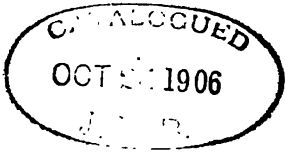
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PREFACE.

The present number of the COMPENDIUM will be found to contain a full synopsis of the leading points in Medical Science gained in the last six months. As usual, while discussions of theoretical points have been given in a number of instances, chief attention has been paid to representing the conquests of positive medicine, and the matured results of clinical experience. These are the points which always will have the greatest interest for the working practitioner.

THE EDITORS.

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ANATOMY, PHYSIOLOGY AND PATHOLOGY.

I. ANATOMY.

Anatomy of the Tactile Corpuscles.

A note on this subject was presented to the Academy of Science of Paris, in November last, by M. RANVIER, a notice of which is found in the London *Medical Record*, January 15th. Dr. Ranvier says:—

The tactile corpuscles exist in a very simple form in the tongue and beak of the domestic duck. I studied them in the first instance in these organs, with the help of various methods, of which I cannot here give the details, but only the results. In the duck, the tactile corpuscles are abundant in the skin which fringes the beak, and in the soft papillæ, which, by their union, form an elongated pad along each side of the median and horny crest of the tongue. These corpuscles are constituted by two, three, four, or even a larger number of large cells, arranged in a regular pile one above the other. The group formed by these cells is surrounded by a lamellar capsule, and with a continuous epithelioid layer. The cells of the tactile corpuscles are globular, after the fashion of the cells of the cartilage of ossification. They contain a sphericle nucleus, bounded by a double line, and furnished with one or two large rounded and refracting nucleoli. When two cells only form a tactile corpuscle they are hemispheric, and their plane surfaces are applied over one another. If there be more than two cells in a corpuscle, the two extremities are hemispheric, while the others show two flattened surfaces, which correspond to similar surfaces in their neighbors. In general, each tactile corpuscle receives a single nerve tube. Having reached the single intercellular space of the corpuscle, if the latter be composed of two cells only, the nerve tube penetrates into it, and enlarges itself by forming a disk, which I shall call the tactile disk; and here is the important point of this communication. The tactile disk has a nummular form; its edge is rounded; it is constituted by a substance apparently homogeneous under a low power, assuming a gray color under the influence of osmic acid, and a lighter or darker violet color under that of chloride of gold. It is flexible, and in histological preparations is often seen turned on one side, in consequence of the derangement of the tissues by the influence of reagents, or of the instrument which has been used to make the sections. Placed between the plane surfaces of the two cells of the simple corpuscle which I am at present considering, the tactile disk never overlaps them; its diameter is even inferior to that of these cells, which, touching each other beyond its edge, envelop it on all sides, and hold it as would a box of which the bottom and the top were of the same size. When three cells enter into the composition of a tactile corpuscle, there are two tactile disks; if there be four cells, three disks. In one word, a representing the number of the disks, b that of the cells, $a = b - 1$. From this fact it most evidently results that the cells of the tactile corpuscles cannot be considered as terminal nerve organs. The nerve tube which is distributed to the disks of a tactile corpuscle, composed of $2+n$ cells, takes on different arrangements;

a nerve tube which has already furnished a lateral ramification to a corpuscle, divides itself, and gives out a secondary branch, which goes on to end in a neighboring corpuscle. On a well-made section of a tactile corpuscle, made after maceration for twenty-four hours in a solution of osmic acid of the strength of 1 per cent., and afterward treated by double chloride of gold and potassium of 1 in 10,000 parts, the cells show parallel striæ, slightly curved inward, and of which the general direction is perpendicular to their plane surface. In the same conditions, the tactile disk appears granular when the section is perpendicular to its nerve fibre. This granular appearance is due to the section of the fibrillæ, arising from the spreading out of the axis cylinder. This description shows that the tactile disk, a true sensitive nervous organ, is protected against mechanical excitations imported from without by special cells which surround it. Hence it can only receive impressions in an indirect manner. In conclusion, I ought to add that I have studied the tactile corpuscles of the fingers of the human subject, and that the constitution of these corpuscles, though more complex, is, in every respect, comparable to that of the corpuscles of the tongue and beak of the palmipedæ.

The Relative Lengths of the Index and Ring Fingers.

In a paper in the *Archivio dell' Antropologia e l' Etnologia* (vol. vii, part 1), quoted in the *British Medical Journal*, Dr. PAOLO MANTEGAZZA states that he has frequently put the following question to anatomists, artists, and sculptors: "Is the index finger or the ring finger the longer in the human hand?" And he has generally found that, being suddenly called upon for a reply, they have looked down at their own hands before attempting an answer. In fact, no one seems very clear about it. Ordinary anatomical works give contradictory statements, and the author cites a warm discussion on this subject between Casanova and Raphael Mengs ("Mémoires de Casanova," t. vi, p. 252). Dr. Ecker has observed that in the anthropoid apes the index is always shorter than the ring finger; and out of twenty-five negroes he found the same relation to hold in twenty-four, while on examining the hands of twenty-four negresses it was seen that fifteen had the index shorter than the annularis, six had it longer, and three had both fingers of the same length. A Hottentot and an Australian were found, like the majority of the negroes, to have the second finger shorter than the fourth; and this was also the case in the hands of the two Akka boys brought to Italy, two or three years ago, from Schweinfurth's country of the dwarfs. Such facts as these might induce anthropologists to regard the relation just given as that characteristic of the lower types of mankind. On the other hand, it is said the highest types have the ring finger shorter than the index. Most of the sculptors of antiquity seem to have thought this typical of a fine hand, and it is seen in the Apollo Belvidere, the Venus de Medici, the Venus of the Vatician, the Dying Gladiator, etc. But modern sculptors and painters appear careless in this respect, giving the greater length sometimes to one and sometimes to the other finger. Dr. Mantegazza, assisted by Mr. Forsyth Major, has examined 712 Italian hands. Of these 91 had the index longer than the ring finger, on both hands; 503 had the index shorter on both hands; 102 had the index longer on one hand, and either shorter than, or equal to, the ring finger on the other hand; while 16 had the two digits of equal length on both hands. It appears, therefore, that the relation of length between the two fingers is not sufficiently constant to be made an ethnical characteristic, or a mark of higher or lower physical development. This agrees, in the main, with the conclusions of Dr. Ecker.

The Threefold Arrangement of the Semilunar Valves.

Dr. L. R. LONGWORTH, Professor of Anatomy in the Medical College of Ohio, writes to the *Clinic*, February 16th, 1878:—

Carefully as the semilunar valves have been studied, and minutely as their structure and function have been described, so far as I know, attention has never been called to the reason which accounts for the fact that the segments of these valves are three in number; and yet the reason is an obvious and a good one. This arrangement is not a matter of chance, nor, as the German adage has it, because all good things are three, nor has it any relation to the number of the Graces, nor the doctrine of the Trinity, as might have been supposed by the older anatomists. The reason is a purely geometrical one, and lies in the relation of the diameter to the circumference of the circle.

For the semilunar valves to perform their function perfectly two things are requisite: 1st, that the segments of the valve should lie flat against the wall of the artery, in order to allow the blood to pass out uninterruptedly from the ventricle; and, 2d, that the segments should fall together and come in contact with each other as far as the centre of the artery, to prevent regurgitation back into the ventricle. Now, in order to fulfill these two conditions it is necessary in the first place that the length of the free borders of all the segments added together should be equal to the circumference of the artery, for otherwise the segments would not lie flat against the wall of the artery during the systole of the heart; and in the second place the length of the free border of each individual segment must be equal to two radii or to the diameter of the artery, for when the valve closes during the diastole of the heart the middle of the free border must fall to the centre of the artery, and its extremities remaining attached to the circumference, the free border of a single segment comes to coincide with two radii, and must, therefore, equal in length the diameter of the artery. In a word, then, the sum of the lengths of the free borders of all the segments must equal the circumference, and the length of each individual free border must equal the diameter of the artery. But the case of three segments is the only one which will fulfill both these conditions, inasmuch as three diameters equal the circumference, and the cases of two, four, five, or any other number of segments can fulfill but one of these conditions only. In the case of two segments, if the free borders were long enough to lie flat against the wall of the artery they would equal half the circumference, that is, a diameter and a half, and would be too long to come closely in contact during diastole; if only one diameter in length, so as to fit closely in diastole, they would be too short to come in contact with the arterial wall. In the case of four segments, if the free border of each segment is long enough to fall to the centre, it must equal two radii or the diameter, and subtending but one-fourth of the circumference of the artery, that is, a length of the arterial wall equal to but three-fourths of diameter, it is evident that it cannot lie flat against the wall of the vessel; conversely, if the four segments lie flat against the arterial wall the free borders of each segment must equal one-fourth the circumference, that is, but three-fourths of the diameter, and will be too short to fall to the centre. The same is true in a greater degree in the case of five or any larger number. But in the case of three segments, the free borders of each subtending a third of the circumference of the artery will lie flat against the vessel wall if it equals one-third the circumference or one diameter, and equaling one diameter will also fall exactly to the centre and come into apposition with the other two, thereby fulfilling both the necessary conditions mentioned.

This principle affords a very simple and entertaining demonstration which I have been in the habit of using in my lectures. It consists in fastening three paper half moons by their semi-circumferences, and side by side, to a large sheet of paper, in such a manner that they shall lie *quite flat;* the sheet then being then rolled up so as to form a cylinder, the unfastened free borders of the half moons will exactly reach the centre and come into perfect apposition. It is clear this can be done with no other number than three. I have also thought it of interest to show that the principles of geometry are not evidenced in the structure of the eye alone, but that they are also manifest in the anatomy of the heart.

II. PHYSIOLOGY.

The Source of Caloric in the Fœtus.

The New York *Medical Journal*, February, 1878, quoting from the *Journal des Sciences Medicales de Louvain*, states that with the object of demonstrating that the fœtus derives part of its caloric from itself, Bärensprung, Schäfer, and Wurster took the temperature of the infant immediately after its birth. Their results were not concordant; they found this temperature sometimes higher, sometimes lower, than that of the mother.

ALEXEEFF (*Archiv f. Gynæk.*, Bd. x., Heft 1) has repeated these experiments by introducing, *before birth*, the bulb of the thermometer either into the rectum of infants presenting by the breech, or into the mouth of those presenting by the face. He obtained the following results:—

Anal Temperature of the Infant.	*Maternal Temperature taken at Same Moment.*
First case.....39.6, 38.7, 38.6.	38 (axilla), 38.3 (vagina), 38.4 (rectum).
Second case.....38.6, 38.5, 38.5.	38, 37.8, 37.5, (axilla).
Third case.....38.3, 38.2.	37.6 (vagina), 37.6 (rectum)
Fourth case.....38.5.	37.8 (vagina).

Buccal Temperature of the Infant.	*Maternal Temperature.*
First case.....38.2, 38.4, 37.6.	37.1 (rectum), 37 (vagina), 37.3 (uterus).
Second and third cases.....37.9, 37.8.	37.2 (vagina), 36.6 (uterus).
Fourth case.....38.1.	37.8 (uterus).

It appears, from these measurements, that the fetal temperature is superior to the maternal by several tenths of a degree.

On the Functions of the Retina in Color Perception.

Some interesting recent observations are recorded in the *Lancet*, Feb. 2d, 1878, on the sensitiveness of different parts of the retina for different colors.

Dobrowotsky, a Russian observer, finds that if the same illumination be given to disks of different colors, which is difficult to manage in practice, and these are gradually moved toward the point of fixation of the eye along different meridians, white, and coincidently, blue, are first perceived in all parts of the retina, then green, and finally red. Chodin, on the other hand, though admitting that the various colors

undergo some change of tint when seen by indirect vision, yet thinks that all colors can be recognized up to the most extreme limits of the retinal field. Woinow, again, speaks very definitely of the existence of three zones of perceptivity in regard to colors around the macula lutea. In the first, immediately surrounding this spot, all colors appear less saturated than in the centre, some of them being apparently "bluish" or "yellowish," constituting what he terms relative red and green cecity. In the second zone only yellow and blue are distinguished—his zone of absolute red and green cecity; mixed colors seen with this zone appear pure yellow if, when seen with the fovea centralis, they seem to contain much yellow or pure blue; if with central vision, they seem to have much blue in their composition. In the third, or outermost zone, perception of light remains, but no color can be recognized. This zone, therefore, represents that defect of vision which sometimes affects the whole retina, and is termed achromatopsia, the play of color being unperceived. From these observations Woinow is led to admit the existence of five different elements in the human retina—one, the rods, having for their function the perception of light alone; and four kinds of cones, each adapted to perceive a fundamental tint—red, yellow, green, or blue—but having a very different distribution. In and near the centre all are present, though even in this zone the red are less numerous peripherically than centrally. In the second zone, in addition to the rods, only yellow and blue percipient cones are present, while in the third zone the rods, or light-perceiving elements, alone remain. Woinow remarks that the red and green perceiving elements are very tender and delicate, and are the first to fail in function when the eye is injured, as in cases of contusion, while the yellow and blue perceiving elements are more resistant, and no case of their absence has hitherto been recorded. Klug's observations, which have been published in Graefe's *Archiv*, agree with those of Woinow, except that he makes a fourth zone within Woinow's red zone, in which only orange and violet are clearly perceptible.

The Physiology of the Pancreas.

A paper appears on this subject, by MM. Afanassiow and Pawlaw, in the January number of *Pflüger's Archiv*, in which they discuss the advantages of permanent, as compared with temporary fistulæ, awarding the palm to the former; and having decided this, they set themselves to ascertain the innervation of the pancreas. From analogy this gland might either receive special excitory nerves, or its secretory activity might be regulated by the vaso-motor system, or both sets of fibres might coexist. The existence of a vaso-motor system of nerves is indubitable; it remained to demonstrate the presence of proper secretory nerves. As a means of settling the question, they resorted to Heidenhain's plan of investigating the action of atropine, and of stimuli of various strength, upon the secretory activity of the gland and upon the concentration of the juice. Control experiments, made by testing the juice soon after food and during fasting, showed them that the secretion of solid and of fluid constituents is due to two different processes, subject to two sets of nerves, by one of which the chemical work of the pancreatic cells is governed. On injecting atropine the secretion was always checked, and in some instances completely inhibited. They consider the evidence of the presence of proper secretory nerves to be quite irrefragable. They next proceeded to inquire whether, admitting the accuracy of Bernstein's statement, that irritation of the vagus inhibited the pancreatic secretion, this inhibitory influence is due to a direct action, or was indirectly referable to the pain caused by stimulation of the nerve. Their experiments

satisfied them that sensory irritation of the skin was capable of inhibiting the secretion of the pancreas.

The Functions of the Ganglion Nerve Cells.

In the course of an article on the functions of the nervous system, in the *Lancet*, December, 1877, Dr. JAMES ROSS says of the ganglion cells—

These contain a store of material possessing potential energy, which, on the application of a liberating force, becomes kinetic. The chemical process which underlies the transformation is probably of the nature of oxidation, since the blood, returning from the brain, for instance, is as venous as that returning from any other part of the body; but we possess no direct evidence of the nature of this change. In reference to the liberating force, it may be noticed that the ganglion cells do not appear to respond to the usual mechanical and chemical stimuli. By employing strong electrical stimuli to masses of ganglionic cells, such as those of the cortical part of the brain, a response has been obtained from them in the form of muscular movements. These cells are, however, connected with each other by innumerable fibres; and there lie immediately beneath them large masses of nerve fibres, to which the currents, from the strength employed, must undoubtedly be conveyed; hence it is extremely doubtful, to say the least, how far the muscular movements in such a case can be taken as evidence of the direct action of the current on the cells. When the ganglion cell lies between two nerve fibres, as those engaged in reflex action, the potential energy of the cell is set free by means of the energy already liberated of the stimulated fibre; and the energy thus set free renders kinetic the potential energy of the second fibre. The cell largely increases the amount of energy rendered kinetic during the action; but, except in degree, the function of the cell in this case does not greatly differ from that of any portion of a conducting fibre. But even in such a simple case the cell generally becomes the point of union of several fibres; and thus it helps to direct the disturbance it receives through one fibre, into two or more fibres, and becomes the active agent in giving a new direction to the current.

The manner in which the energy of the cells is liberated in automatic action is not so easy to understand. It is probable that a great many of the actions included under the title of "automatic" are due to an operation of a reflex nature. There is another way in which the energy of the automatic cell may be supposed to be liberated. The energy set free during one moment may perform the part of a liberating force the next moment, on the store of potential energy, which store is being constantly replenished from the blood, just as a fire, when once kindled, may be kept burning if supplied with combustible material. But the liberation of energy effected by this means would be continuous; while the liberation of energy in a stimulated nerve fibre is interrupted or intermittent. It is quite possible, however, for a continuous liberation in a ganglion cell to give rise to an interrupted or rhythmical stimulation of a nerve fibre. Suppose that the energy liberated in the cell has to overcome a certain resistance before acting as a stimulus on a nerve fibre; a certain tension must be reached prior to stimulation; and when the requisite tension is reached, a discharge takes place through the nerve. This discharge diminishes for a time the tension of the energy liberated in the cell; and as it is probable that the molecules of the axis cylinder have fallen during the discharge from an unstable to a stable equilibrium, so the resistance to a second discharge through the fibre will be increased. The continuous liberation of energy within the cell soon raises the

tension again; while by restorative processes in the axis cylinder its molecules are once more restored to their position of unstable equilibrium, and the conditions for a second discharge are immediately restored, succeeded by the conditions of a second interval. When the resistance is great it will require a high tension to overcome it; and this implies that the liberation of energy must continue for a long time before the necessary degree of tension is reached, and that when the discharge takes place it will be a powerful one. Strength of discharge, then, involves length of interval between the discharges; or, in other words, the strength of every discharge of energy through a nerve is inversely proportional to its frequency.

The Relations of Arterial Tension.

At a meeting of the Société de Biologie, in December last, M. Francois Franck communicated some very interesting results of his experiments upon the relation between arterial tension and the frequency of the cardiac contractions.

Marey has formulated the law of the inverse ratio of the heart-beats to the arterial pressure, other things being equal; but this last condition is very hard to fulfill. If all the connections between the head and trunk of an animal, excepting only the pneumogastric nerves, be severed, the cardiac rhythm may be considerably retarded by injecting defibrinated blood, so as to increase the intracranial arterial tension. A similar effect may be produced by compressing the encephalic organs from without. Another condition which seems to be associated with the preceding, is the increase of the intracardiac tension. If the cardiac muscles of a turtle be divided so as to suppress completely all active innervation, the cardiac rhythm remains the same under all variations of intracardiac pressure. These experiments appear to show that the variations in the rapidity of the heart's action depend upon changes produced in the nervous centres regulating the organ, and not, as might be thought, in the mechanical effect of increased opposing force. This agrees with Bernstein's view (*Med. Centralblatt*, 1867, No. 1). Bernstein says the reduction of the pulse-rate which followed injection of water into the circulation of dogs and rabbits took place through the vagi. At the same time, we must recollect that it is no new discovery that augmentation of the tension in the cerebral circulation retards the heart, and it would be accepting more than the logical conclusion were we to infer that this is the only road by which the heart's action can be affected. The second part of M. Franck's experiments does indicate that, innervation being excluded, mere increase of intracardiac pressure determines no alteration in the cardiac rhythm. We have such scanty details of his mode of operating, that it would be premature to express an opinion; but the tendency of recent physiological investigation has been to centralize all the motor phenomena connected with the circulation, and to make them depend more and more upon impressions generated in the medulla.

On the Numeration of Blood Corpuscles.

Dr. W. R. Gowers, Assistant Professor of Clinical Medicine in University College, says, in the *Lancet*, December, 1st, 1877:—

The richness or poverty of the blood in corpuscles can only be ascertained by directly counting the number of corpuscles in a given volume of the blood. It is only by this means that variations in their number—an important element in all conditions of anæmia—can be with accuracy ascertained or stated, and it is thus that the relative numbers of the red and white corpuscles can be best determined. The method is not only an important addition to our means of clinical accuracy; it

is an extension of our field of observation which will probably lead to important additions to our knowledge of the pathology of the blood.

It is perhaps necessary to explain that the principle of the proceeding is, in all cases, that which was devised a quarter of a century ago by Vierordt, and consists in making a definite dilution of a measured quantity of the blood, and counting the number of corpuscles contained in a certain volume of that dilution. Several modifications of the process have been made, relating especially to the latter part of the process. Vierordt drew uniform lines of the diluted blood along a glass slide, and, after drying, counted the corpuscles in a given extent of those lines. Cramer substituted for this what may be termed a capillary cell, and in the better known methods of Potain and Malassez a capillary tube is employed. Hayem and Nachet have improved upon this by employing a cell of a certain depth. In each case the area of the tube or cell in which the corpuscles are counted is determined by the method devised by Cramer, of employing a "quadrilled ocular"—*i. e.*, an eye-piece micrometer, ruled in squares, the value of which for the microscope used is definitely known.

In order to remedy the inconveniences of this method, a modification of Hayem's instrument has been made, according to my directions, by Mr. Hawksley, of 300 Oxford street, London, which can be used with any microscope, and by which somewhat greater accuracy can be secured in the operation. In it tenth of a-millimeter squares are ruled on the glass slide at the bottom of the cell. When the corpuscles have subsided to the bottom of the cell, they are seen lying in the divisions, and the number in each can be counted with perfect facility. In the French instrument, a little fluid has to be placed in the glass cell, to secure the covering glass. This I have found objectionable, because the amount of fluid influences the closeness with which the covering glass rests on the cell and the consequent depth of the cell. To obviate this source of error, the slide has been placed on a metal slip to which two springs are attached; these rest on the edges of the covering glass, and keep it in position with a pressure which is always uniform. The other parts of the instrument, for measuring and mixing the blood and the diluting fluid, are on the same plan as in the instrument of Hayem and Nachet. But by employing a dilution (1 in 200) which is somewhat different from that which they employ (1 in 251), the process of ascertaining and also of stating the corpuscular richness of the blood is much simplified.

The hæmacytometer consists of—(1) A small pipette, holding exactly 995 cubic millimetres. (2) A fine capillary tube, holding five cubic millimetres. (3) A small glass jar, in which the dilution is made. (4) The cell, above mentioned, exactly one-fifth of a millimetre deep, the floor of which is ruled in tenth of millimetre squares. Various diluting solutions have been recommended in order to change as little as possible the aspect of the corpuscles. It is not well, however, to endeavor to observe the character of the corpuscles during the numeration. Whatever solution is employed the corpuscles are more or less changed by it. One which answers very well is a solution of sulphate of soda of a specific gravity of 1.025.

The mode of proceeding is extremely simple. A pipetteful of the solution is placed in the mixing vessel. Five cubic millimetres of blood are then drawn into the capillary tube from a drop in the finger, and then blown out into the solution. The two are well mixed by a glass rod; a drop of the dilution is placed in the centre of the cell, the covering glass applied and secured by the springs, and the slide placed on the stage of the microscope. The lens is then focused to the squares.

In a few minutes the corpuscles have sunk on to the squares. The number in ten squares is then counted, and this, multiplied by 10,000, gives the number in a cubic millimetre of blood. The average of healthy blood was decided by Vierordt and Welcker to be 5,000,000 per cubic millimetre, and later results agree with this sufficiently nearly to justify the adoption of this number as the standard, it being remembered that in a healthy adult man the number may be a little higher, in a woman a little lower. The number per cubic millimetre is the common mode of stating the corpuscular richness of the blood. But by employing this dilution, and squares of this size, a much more convenient mode of statement is obtained. Taking five millions as the average per cubic millimetre in healthy blood, the average number in two squares of the cell is 100. The number in two squares (ascertained by counting a larger number, ten or twenty, and taking the mean) thus expresses the percentage proportion of the corpuscles to that of health, or, made into a two-place decimal, the proportion which the corpuscular richness of the blood examined bears to healthy blood taken as unity, or the number in twenty squares may be taken as a three-place decimal. This is a much more simple process than that of Hayem.

For instance, in a case of lymphadenoma with moderate apparent anæmia, it was found that ten squares contained 355 corpuscles, equal to 3,550,000 per cubic millimetre of blood. The average of two squares (71) is the percentage, and thus the corpuscular richness is .71.

In the proceeding one or two precautions are necessary, to ensure accuracy. The blood, as Hayem suggests, should be obtained by a puncture with the point of a lancet, sufficient to permit the escape of a drop without much pressure. If the finger is much squeezed or pressed, the relative amount of serum and corpuscles is affected. It is somewhat difficult to get the exact quantity of blood in the capillary tube, because, in removing the blood from the point, a little is easily drawn out of the tube. It is therefore best to draw rather more than the required quantity into the tube, then to remove the blood from the point with a soft cloth, and keep the cloth in contact with the point while the extra blood is blown out of the tube. A little of the diluting fluid should be drawn into the tube after the blood is ejected, to ensure the removal of all the corpuscles. The drop placed in the cell should not come in contact with the sides of the cell. It must, of course, be in contact with the cover-glass. The corpuscles should be counted in or near the centre of the drop. In distinguishing the red from the white corpuscles, it must be remembered that a weak diluting solution causes many corpuscles to swell up to twice the size of the others, and care is needed to distinguish these from the white cells. A quarter-inch objective is the most convenient to employ. The whole process, from beginning to end, does not occupy more than a quarter of an hour.

As instances of its use the following may be cited. In a case of anæmia from lead poisoning the number was found to be only 3,020,000 per cubic millimetre, equal to 60 per cent. (.604 of the normal quantity). In a case of chlorosis the number was only 3,320,000, giving a percentage of 66 (a proportion of .662). In another case of chlorosis the number was only 2,830,000 per cubic millimetre, giving a percentage of 56 (a proportion to health of .56). In a man with great, apparently idiopathic, anæmia the number was as low as 1,650,000, giving a percentage of only 33.

It may be asked—Is a process in which so large a dilution is employed, as is necessarily the case in the numeration of blood-corpuscles, one of sufficient accuracy

to render it really useful? A certain amount of error must be admitted, but I think that the following example shows that the accuracy obtainable is sufficient to give reasonable value to the results obtained. I made three careful consecutive observations on the blood of the same individual, taking a fresh drop on each occasion, and taking the average of twenty squares each time. The percentages obtained were respectively 83, 87, and 84, giving a mean of nearly 85, from which the extreme variations were less than 3 per cent. In the case of idiopathic anæmia mentioned above, two separate dilutions gave 1,640,000 and 1,660,000 corpuscles per cubic millimetre, the proportion to normal blood being respectively .328 and .332—a very slight variation. A greater diversity than these would still be less than Sörensen found to be unavoidable with Malassez's instrument.

The Amount of Saliva Secreted During Mastication.

M. TUCZEK, in the last part of *Zeitschrift f. Biologie*, relates his experiments on the amount of saliva secreted during the mastication of different kinds of food. The plan adopted was to take an ordinary mouthful of the substance, the quantity of water in which was known beforehand. It was masticated till judged fit to be swallowed, then ejected, weighed, and dried. From the dry residue the quantity introduced into the mouth was calculated, and on subtracting this from the total weight of the ejected morsel, the amount of saliva added to it was obtained. The quantity of saliva secreted he finds is, as might be expected, greatest in dry food, as the crust of bread, where it amounts to somewhat more than the weight of the substance itself. He proceeds, on the data so obtained, to estimate the absolute amount of saliva secreted per diem, and gives the following table: Adult fed on black bread exclusively, 545 grammes; white bread, 698; non-nitrogenous food (starch, fat, sugar), 500; food with a larger proportion of bread and potatoes, 659; mixed food, 476; albuminous food, 773 grammes. On comparing these numbers with the total weight of the salivary gland (about 66 grammes), it appears that 100 grammes of salivary gland secrete in an hour about 1300 grammes of saliva, which, in comparison with other glands of the body, shows that the salivary glands possess great activity.

The Effect of Alkalies on the Animal Organism.

In a study of this question Prof. MIALHE, of Paris, states his belief that the effect of bicarbonate of soda is to modify the intimate composition of albuminous bodies with which the alkali enters into combination, and, in consequence, to increase the activity of the phenomena of oxidation, or of vital action, such as endosmosis and exosmosis, and to modify the excretions. To attain this result the quantity of alkali needed in different cases varies. The proportion of soda in the system, whether as carbonate or as albuminate, is not always the same. A man who lives in a town, and eats much nitrogenous food, needs a larger dose of alkali, in order to bring the system into the same condition, than the peasant who eats chiefly bread and vegetables. A loss of acid probably occurs during free perspiration, and hence the condition of the skin should be taken into consideration, for a person who perspires much needs less alkali than one who does not. The greater the amount of exercise the smaller is the amount of soda needed. Lastly, the higher the temperature the less alkali can be borne, perhaps because the temperature itself has an influence similar to that of forced exercise, and partly on account of its action on the nervous system. It is well to commence the treatment with the full quantity which

will be needed, in divided doses. M. Gubler subsequently announced his concurrence with M. Mialhe in the need for and utility of large doses of alkali, but differed as to the possibility of doing harm by extreme doses. It must not, he urged, be supposed that because a substance is a necessary constituent of the body it cannot be prejudicial if given in large quantities. Oxygen, for instance, introduced into the lungs in too large quantities is a poison, and, although in some cases a quarter of a pound of bicarbonate of soda may be taken daily without inconvenience, it is certain that a distinct alkaline cachexia is sometimes to be observed, and is especially likely to occur where there is renal disease.

The Effect of Acids on the Animal Organism.

Experiments made by FR. WALTER, in Prof. Schmiedeberg's laboratory, show (*Archiv für Exp. Path.*, vii, 148) that the blood of rabbits is differently affected by the injection of considerable quantities of dilute acid (hydrochloric) from that of dogs. In rabbits the volume of carbonic acid dissolved in the blood is enormously diminished, owing to the alkaline bases with which it was previously combined being appropriated by the stronger acid. In one case the volume of carbonic acid fell to 2.07 per cent., whereas the mean of four experiments on healthy animals was 25.81 per cent. The loss of so much carbonic acid was fatal to the rabbits, not, however, *per se*, but because of the abstraction of alkali from the blood by the stronger acid. This was proved by the negative results of the post-mortem examination of the dead rabbits, and by the fact that if acid were injected into a rabbit's stomach, and simultaneously a solution of carbonate of soda were injected under its skin, the animal remained completely uninjured; and further, by the possibility of restoring animals in the last agony, or even after apparent death, to life, by the injection of the carbonate. The chief symptom of poisoning by acids is dyspnœa with deep and labored inspirations. The blood pressure is not materially affected, except by the influence of the respiration on it. The respiratory centre appears to be first stimulated and then paralyzed by an excess of acid, and the early restoration of the balance of alkaline power arrests the stage of paralysis at its commencement. In dogs, the amount of alkali which is withdrawn from the blood by combination with a stronger acid than the carbonic is very slight, and it appears that the greater part of the stronger acid serves either to increase the acidity of the urine, or to combine with organic bases and form salts, which can be excreted by the kidneys. The ammonia was found by Walter to be decidedly increased on those days on which acid was administered, an average of 3.671 grammes more than the normal amount being excreted on five consecutive days, or enough to saturate 72.2 per cent. of the acid injected. The reason of the different behavior of rabbits and dogs under the influence of acids is still unexplained, but it is well to remember that the former animals are adapted for vegetable, and the latter for animal food, and it is possible that the excess of acid may, in the case of the dog, be primarily diverted to the gastric secretion, and so prevented from concentrating itself in the blood.

III. PATHOLOGY.

On Calcification of Adipose Tissue.

Dr. EDWARD H. BENNETT, Professor of Surgery in the University of Dublin, writes, in the Dublin *Journal of Medical Science*, January, 1878:—

The clinical phenomena attendant on this affection are sufficiently interesting, although not of grave importance. Before I enter on the description of these, or of the microscopic characters of the altered tissue, I must guard myself against the danger of being misunderstood in the use of the term "calcification of adipose tissue." I use it in the same sense and with exactly the same limitation as it is commonly used in regard to other tissues—cartilage, for instance. I mean that the change is seated in the connective basis of the tissue, not in the contents of the cells. Viewed in the general aspect, there is no novelty in the observation that connective tissue is liable to calcify; but I am not aware of any observation having been as yet recorded of the existence of the change under the conditions, and with the microscopic features, which I shall presently describe.

In the subcutaneous tissue of the anterior aspect of the leg in elderly women, small hard bodies may be often observed, flattened on the superficial and deep aspects, circular in outline, the largest about one-fifth of an inch in diameter, the smallest mere grains. These bodies are freely movable on the deeper tissues and beneath the skin, and are arranged with a rough symmetry in the two limbs; if there be but one or two in a limb, the finger carried over the corresponding part of the opposite limb readily detects even the single specimen. When they are numerous, their symmetry is similar to that of cutaneous eruptions, not absolutely exact, but very nearly so. They occur in thin-skinned, pale bodies, and so can generally be seen before their detection by the hand. I have never seen them associated with varicose veins, or with skin eruptions, or ephelitic markings on the legs. They are most commonly seen in the limbs of the pauper subjects in our dissecting-rooms; but I have seen them in the living also, in hospital. They are not the seat of any trouble or pain to the patient, and pass unnoticed by her until attention is directed to them by the surgeon. I have never seen them in the male. In my early examinations of them, I sought for small veins, or varices, as their seat, under the impression that they were phleboliths. I next searched for a lymphatic vessel passing into or connected with them, being still impressed with the idea that they were the result of some vascular obstruction, but I failed to find any anatomical support for such idea.

The close relation of the bodies to the subcutaneous fat, always embedded in the lobules and intimately connected with them, made the search for minute vessels, such as lymphatics, difficult; but I was satisfied that such relation did not exist. I had heard these bodies described as of gouty origin, but their color (a dark yellow) and hardness, even without chemical examination, set aside this theory, for tophi are white and most friable.

Being foiled in the attempt to explain their origin in some vascular obstruction, and not entertaining the gouty theory at all, I resolved, when next I met them, to make the microscopic examination with care. Some time elapsed before opportunity occurred, as my means of observation, so far as the dissecting-room affords it, are less frequent than in former years. Last summer I obtained abundant specimens in one subject and a few from a second, in each case absolutely agreeing with the

observations as to the mode of occurrence, etc., which I had previously noted. From these I obtained the following results by microscopic examination:—

I made a thin section of the centre of one of the largest of the bodies dried. Adopting the ordinary process for hard, brittle substances, I polished a flat surface on one face of a section made with a fine saw through the centre of the body, and cemented it to a glass slide with old Canada balsam; I then ground away the structure until I obtained a fine transparent section. In this process I learned that the densest part of the structure was at the circumference; the most open and friable at the centre. Examined, after completing the mounting with fluid Damar varnish, the pattern of the thin circumferential part was clearly seen to be that of ordinary condensed connective tissue, forming a capsule for the body calcified. In it the usual irregular lacunæ, dark by transmitted light, due to gaps in the structure, were readily seen; septa from the capsule passed irregularly through the structure, themselves calcified and showing lacunæ similar to the outer layer. The arrangement of these parts was such as every one familiar with the microscopic appearances of the compound tissues would recognize as that of the envelopes and septa of subcutaneous fat. In the intervals enclosed by these calcified envelopes and septa the mass of the structure appeared arranged strictly in the pattern of the fat cells, the intercellular substance being calcified and breaking with a brittle, glassy fracture. Fearing error in a single observation, I repeated the process with several specimens, and obtained results exactly similar. I next macerated a fresh specimen in a weak picric acid solution, to which a minute quantity of hydrochloric acid was added. I established in this way the fact that the earth salts were deposited in the connective tissue forming the capsule and septa of a lobule of adipose tissue, and in the intercellular structure of the fat cells. The decalcified tissue presents the pattern of ordinary fat, with only the exception that the structures out of which the earth salts have been dissolved are thicker than in the healthy tissue. One point further only remains to be stated, the position of the calcified body in the fat lobule; this I have always found to be marginal, never central. I have never seen any such alteration as I have described in lipomata, or in any part of the body except that mentioned above.

A Case of Calcification of the Lung.

The London *Medical Record*, Dec. 15th, 1877, states that at a meeting of the Medical Society of Vienna, Dr. HANS CHIARI described the case of a woman, aged 27, who had died in the Rudolf Hospital in the preceding week. She had suffered for six months from cramp in the stomach, with frequent vomiting, and had gradually become emaciated. Dr. Mader diagnosed narrowing of the pylorus by cancer or by the cicatrix of an ulcer, dilatation of the stomach, etc. At the necropsy there was found narrowing of the pylorus, caused by the cicatrix of an ulcer. The right lung presented whitish-gray indurated masses, breaking down with difficulty under the finger; when cut, they crackled, and serum escaped from them. On the addition of sulphuric acid, the masses were rapidly dissolved, and needle-shaped crystals of sulphate of lime were formed. In short, the case was one of that rare affection, calcification of the lung, and Professor Ludwig had found that there was an unusually large amount of phosphate of lime (nearly 14 per cent). The left lung also contained some calcified masses. There were no pleural adhesions. Both kidneys contained, both in the cortical and in the medullary substance, numerous white calcareous particles accumulated in and around the urinary tubules. There were none in the stomach and intestines, and the bones presented no abnormal appearance.

With regard to the cause, Dr. Chiari could arrive at no positive decision. There was no evidence of previous chronic inflammation of the lungs, and the lung tissue was not altered, otherwise than by the calcareous deposit. It was not probable that the inhalation of lime dust was a cause, as it would not be distributed as it was in the present case; and the quantity accumulated was too great. If, finally, the existence of a general dyscrasia were assumed, the exceptional distribution of the calcareous deposits and the absence of any change in the bones were remarkable. Dr. Bamberger thought it most likely that the lime was introduced from without. In cases of inhalation of the dust of coal or metal, the substances were not equally distributed through the lungs, but were accumulated in individual portions. The accumulation of the calcareous matters in the great excretory organs, the kidneys, appeared to favor this hypothesis.

The State of the Renal Vessels in Granular Kidney.

Dr. RICHARD THOMA, in Virchow's *Archiv*, September and October, 1877, communicates a series of observations on this subject. His first experiments were directed to ascertain the permeability of the renal vessels under constant pressure, comparing the results in diseased and healthy organs, under equal conditions of age. He found that the actual quantity transmissible in a given time, and the proportion of the outflow through the renal vein to the quantity injected into the artery, were both much diminished in the diseased organs. His next inquiries were toward establishing a standard of normal weight for the kidney, and the construction of tables, showing the due relation of the influence of age on this point; also, by careful measurements of the sectional areas of the renal artery and its branches, he succeeded in finding the normal relation between these areas and the size of the organ. On applying these data to determine the changes which take place in disease, he found that the renal artery, though actually slightly smaller, is relatively from one-fifth to twice as large. The inter-lobular arteries, measured midway between the cones and the capsule, and near the capsule, are absolutely larger, as are also the vasa afferentia and the glomeruli themselves. By other experiments, he found that the rapidity of the flow of fluid in the renal artery of diseased kidneys was not half, often not a fourth, of what it is in healthy organs. The injection of colored solutions proved that the blood-vessels of diseased kidneys are abnormally permeable, permitting the passage of not only fluid, but gelatine, Prussian blue, chloride of sodium, and even solid grains of cinnabar, without rupture of their coats. The same injections also demonstrated a great reduction in the capillary network, the vasa afferentia often anastomosed directly with the efferent vessels. In spite of the endarteritis, as a rule, the lumina of the vessels were not less than normal.

The Morbid Anatomy of Yellow Fever.

Some recent researches, reported in the *Lancet*, January 19, into the morbid anatomy and histology of yellow fever, by French observers, serve to confirm and extend other observations by the light of modern methods. Dr. CREVAUX, of the French Naval Medical Service, has studied the histology of the organs during an epidemic which occurred in April and May of 1877, in the Salutation Islands. In the respiratory organs he observed congestion of the lungs, and occasionally pulmonary apoplexy, with, more rarely, some pneumonic exudation. In the heart he found superficial punctiform hemorrhage in two-thirds of the cases, but fatty

degeneration and softening, described by some observers, were usually absent. The blood presented no special morbid change. In the digestive organs there was almost invariably a superficial or catarrhal stomatitis, chiefly marked along the gums, which led not unfrequently to ulceration and hemorrhage during the second stage of the fever. The whole of the gastro-intestinal mucous tract was the seat of patches of congestion, ecchymosis, and sometimes ulceration, which were most marked in the stomach and lower part of the ileum, the glands of the latter being often swollen, but rarely ulcerated. Examination of the mucous membrane of the stomach showed fatty degeneration of the capillaries and of the epithelial cells lining the gastric glands, the cloudy swelling of the epithelium giving a semi-opaque, swollen appearance to the mucous membrane. The liver was usually swollen, yellow, and fatty; on section dry and bloodless, with the exception of some cases in which there was evident congestion, with ecchymosis, which were most abundant near the surface. The changes seen with the microscope consisted in congestion of the portal venules, with occasional exudation around them, granular and fatty degeneration, and breaking up of the cells. The gall bladder usually contained dark thick bile. The spleen was of normal volume and consistence in thirty-six out of forty-one cases, and the enlargement observed in the remainder was evidently of old date, and due to preceding malarial fever. The most marked changes were found in the kidneys, which were diseased in all the forty-one cases. In the early stages, the disease consisted of extreme hyperæmia, with ecchymoses on the surface, in the cortex, and in the submucous tissue of the calyces and pelvis. The latter condition Dr. Crevaux believes he is the first to point out, but it was long ago observed by Pennell. It occurs in more than half of the cases. Ecchymoses in the cortex were more frequent, and Dr. Crevaux was able to prove that they took place from the Malpighian tufts, showing that they were probably due to intense hyperæmia and capillary rupture. In the later stages, changes were found in the epithelium of the convoluted tubules, analogous to those in acute Bright's disease. Dr. Crevaux concludes that the changes which occur are chiefly in the stomach, liver and kidneys; that they consist at first in congestion, and later in fatty degeneration.

Dr. Lebredo, of Havana, in a recent note to the Société de Biologie of Paris, has communicated the results of a minute microscopic examination of the liver from two cases. He found in both some of the changes characteristic of the form of cirrhosis described by Charcot and Gombault, and now known as "biliary cirrhosis"; but these could not have been due to an acute disease. He found also exudation of leucocytes in the portal spaces, and a general atrophy of the hepatic cells, with a vesicular state of their nuclei, in some parts also a very marked fatty degeneration of the cells. Dr. Lebredo proposes to carry out more extensive histological researches in Cuba.

It will be seen that while the changes described by these observers correspond in the main with those previously observed by Bache, De la Roche, Griesinger, Charcot, and others in yellow fever, they differ but little from those seen in other fevers, where they assume a malignant type. One point of interest is the confirmation of the fact that the spleen is but little altered in yellow fever, a fact which, though clearly established by all observers, needs explanation, and is not satisfactorily accounted for by the relief of congestion produced by hemorrhage from the stomach. If this be the sole cause of absence of enlargement, there may yet be changes in the organ which do not reveal themselves to the naked eye.

On the Pathology of Chorea.

The following conclusions are drawn from 156 cases, reported to the *British Medical Journal*, Dec. 8th, 1877, by Dr. J. T. ARLIDGE, of Staffordshire, England:—

The tendency to relapse is a special feature of the disease, and obtains in about one-fourth of the number of cases. The malady, in half the number under observation, affected both sides of the body; of the remainder, one side was affected more seriously than the other in two-thirds; and in the rest was sufficiently one-sided to be called hemi-chorea. In more than one-half of the cases, the muscles of the face were involved. In one-sixth, the speech was affected. The ophthalmoscope was used in a few instances, but revealed nothing save some pallor of the disk.

No positively general rule exists regarding the urine. It is of higher specific gravity usually when the movements are most energetic; but the variations in this respect are great in different patients, and at different times in the same patient.

Choreic patients are nearly always in low health, very often anæmic, and generally of emotional or excitable nervous temperament, with feeble nerve-power. Hereditary predisposition is very rare. In about one-seventh of the number examined rheumatism or rheumatic pains, or heart-disease, has been found to have affected one or both parents; consumption also appears to have been as frequently a family inheritance; and the same may be said of nervous disorders among immediate relatives.

Of the number of patients in whose cases the fact was ascertained, rheumatism had occurred previously to the chorea in about one-fifth; but it would seem, as far as inquiry was made, that scarlatina was about as frequent an antecedent.

Distinct evidence of cardiac lesion was found in rather more than one-fourth of ninety-two cases in which it was sought for and noted. In thirty-seven of these, which were the most recently collected, it was discovered only in one-fifth.

As to assigned causes, fright stands as causing one-fifth of the number of cases; and previous rheumatic and choreic attacks, severally, as productive of a like proportion. Of the remaining two-fifths, reflex irritation, antecedent epileptic fits, and injuries to the head, were made accountable for a considerable proportion; the cause being unknown or unassigned in the rest.

A first group of cases comprises such as are met with in children up to the age of puberty, and in most of which the disorder exhibits itself in its simplest and highly curable form. In this simple form, rheumatism, cardiac and cerebral lesion, do not constitute an element; but there are exhaustion, anæmia, a disturbed nervous condition, and defective nutrition. This form best deserves the special name, chorea.

A second group is connected with the occurrence of rheumatism, and with cardiac lesions traceable thereto: not that the chorea is due directly to embola in the great ganglionic centres in the cranium, although it is probably due indirectly to them, and to their paralyzing and inhibitory action upon the controlling power of the cerebral lobes.

Although further investigation be first necessary to establish the relation and its frequency, there appear grounds for believing that there may be a group of scarlatinal cases of chorea, parallel with the rheumatic, and probably nearly as often having concomitant cardiac lesions. It is not allowed that chorea is peculiarly of cerebral origin, as some assert; for the arguments in support of such hypothesis are faulty; and experience certainly indicates a not uncommon spinal origin of the disease. To this latter source is attributable a considerable proportion of the fourth group of cases, the reflex, which are best illustrated by the chorea of pregnancy.

In the matter of treatment, experience shows that, in most simple cases, any special treatment by drugs may be dispensed with; and that the chief matter to attend to is the general health and nutrition of the patients, which may be sufficiently dealt with by good diet, the withdrawal from causes of excitement and annoyance, and by discipline and sensible management. Not but that various drugs may prove valuable auxiliaries; as, for instance, the salts of iron when there is anæmia; and in all cases the writer uses the cold douche to the spine, or the shower-bath. In the rheumatic group of cases, much the same course of tonic treatment is generally applicable, any special cardiac symptoms calling for appropriate remedies. In the reflex group the rule of action is to remove the cause of reflex irritation.

Cases with high temperature and a febrile condition indicate the presence of collateral disease, only indirectly associated with choreic movements, and call for treatment directed to the removal of the organic mischief In several cases of very severe chorea, tartar-emetic has been found of great service; and in many, of moderate severity, bromide of potassium was apparently useful.

The Pathology of Fatty Embolism.

In an essay, of which an abstract is given in the *Wiener Medicinische Wochenschrift*, No. 37 for 1877, A. HAHN, of the Pathological Institute at Munich, gives the results of clinical observations and of experiments on animals. In the experiments, various injuries were inflicted on the bones, from simple fracture to complete smashing; previous experience having taught that injuries of bones most frequently gave occasion to fatty embolism. In every case of injury where the marrow was implicated, Hahn found fatty embolism; and the amount and extent of the latter was in direct proportion to the extent of lesion of the marrow. The time which elapsed between the receipt of the injury and the occurrence of the embolism had already been described by Busch as very short. In an animal killed by chloroform asphyxia immediately after fracture of a bone, Hahn found fatty embolism of the lungs, heart, liver and kidneys. The taking up of the fat into the vascular system, therefore, begins immediately after the injury, and may soon reach a high degree; on the other hand, there are clinical observations, in which symptoms of fatty embolism have not appeared until several days after the injury, during which time the patients have been doing comparatively well. In no case were there hemorrhagic infarcts, evidences of inflammation, or metastatic abscesses; the embolism was often, however, followed by punctiform ecchymoses. The most important effect of fat-embolism is the obstruction of a number of the capillary regions in the lungs, in which organs the embola were most frequently found; in consequence, some parts of the lungs were anæmic and others hyperæmic, and there was acute œdema, sometimes even softening, of the pulmonary tissue. The elimination of the fat from the vessels takes place partly through the kidneys, fat having been found in the urine two or three days after the injury; and partly by exudation through the walls of the capillaries into the surrounding tissue, from which, as already stated by Bergmann, it is gradually absorbed. The clinical symptoms of fatty embolism, which may appear either at once or some time after the injury, are, general collapse, paleness of the skin and mucous membranes, cyanosis of the face, weakness, diminished sensibility, apathy, feeling of want of breath, œdema of the lungs, quickening of the pulse and respiration, lessening of the energy of the heart, coldness of the extremities, reduction of the body-heat. Hemorrhages in the retina, observed by Czerny after injections of fat,

were not found by Hahn in two analogous experiments, and are, therefore, not constant. He could not produce fatty embolism by breaking up the subcutaneous fat or that of the mesentery. In any case, the conditions for absorption of fat into the blood-vessels and lymphatics are most favorable in the marrow of bones.

The Pathology of Pulmonary Consumption.

The views taught by Professor CHARCOT, of Paris, according to a writer in the London *Medical Times and Gazette*, January 12, 1878, may be summed up as follows:—

1. Yellow solidification of the lung in phthisis, whether acute or chronic, is not the result of the metamorphosis of the products of ordinary inflammation. It represents the central caseous degeneration of a tubercular agglomeration, for it occupies the centre of an embryonic growth which, except for its size, differs in no way anatomically from the classical tubercular growths described in modern writings.

2. The products of common inflammation are, doubtless, almost always present among the complex lesions of caseous pneumonia; but they are only a secondary result of the morbid process, and not the prime agents in the disease.

These views, which in many ways resemble those of Laennec, coincide in the main with those which have been put forth by MM. Grancher and Thaon in France, and by Wilson Fox in England; but M. Charcot thinks it necessary to complete and rectify the descriptions of these authors on certain points. In his investigations he has laid particular stress upon the acute forms of the so-called pneumonic phthisis, because he considers that if he can succeed in showing that there is a tubercular lesion in these forms of phthisis, which resemble lobar pneumonia, or acute lobular pneumonia, he will have shattered the defence behind which the partisans of the simple inflammatory theory shelter themselves; for they attach especial importance to the fact that all kinds of simple pneumonia, whether lobar or lobular, may, in certain cases, pass on to caseous pneumonia, and thus determine pulmonary phthisis.

So far as acute lobar pneumonia is concerned, Dr. Charcot believes it may be left out of consideration, for he asserts that not one of the reported cases, if carefully examined, corresponds anatomically or clinically with lobar pneumonia, but that they are referable to the class of generalized lobular or pseudo-lobar pneumonia. He quotes two cases out of a large number he has collected. In the first of these the patient died fifteen days after the commencement of his illness, which was accompanied throughout by well-marked febrile symptoms, thus offering an excellent example of what has been sometimes called acute pneumonic phthisis. At the autopsy no gray granulations could be found in the lungs or elsewhere. The inferior lobe of the right lung was everywhere invaded by numberless, closely-packed, but nowhere confluent, nodules. Between the nodules the lung-tissue appeared at places healthy, or simply congested, at other points splenified. Some of the nodules had undergone gray hepatization; others were yellow, of the consistence of cheese. There were a few thinly-scattered nodules in the upper lobe of the right lung and in the lower lobe of the left.

The second case belonged to the type of galloping consumption, the disease lasting only three months. At the autopsy the right apex was found to be solidified, and, on section, had the color and consistence of Roquefort cheese. The divisions between the lobules were still marked by the existence of grooves, answering to the inter-lobular spaces. Similar nodules, whose color varied from pale rose to yellow, were

present in the lower lobe of the same side and in the upper lobe of the opposite lung.

A superficial microscopic examination in these cases displayed all the details hitherto described in cases of simple broncho-pneumonia—that is to say, nodules were seen situated round the bronchi, or occupying the acini of the lung. When these nodules, however, were examined under a high power, they were seen to be composed of two regions. 1. A central region, consisting of a homogeneous, translucent, apparently vitreous substance, much like tissue which had undergone amyloid degeneration, but not giving the typical reaction. The position of the bronchioles could be recognized by rings of elastic tissue, filled up by epithelial cells and degenerated leucocytes. The middle coat of the arteries could be distinguished, and everywhere could be seen the bands of elastic tissue, marking the limits of the alveolar cavities, which were filled with caseous detritus.

2. All round this central region, which corresponds with the description of the caseous centre of elementary tubercle, existed a second zone. This was mainly composed of embryonic tissue, which filled the cavities of the alveoli and infiltrated their walls; and hence, in this region, the alveolar contour marked out by the strands of elastic tissue was less distinct than in the first region. The outer boundary of this zone was irregular, corresponding to the usual progressive mode of invasion of embryonic tissue. What renders the study of this zone still more interesting is the habitual presence in it of giant cells, which could be seen in this case disposed in regular order, completely surrounding the central zone. If the outer zone be thin, then there is but one row of these cells; but if it be thicker, then there may be two such rows. Here and there the row had been broken into by the caseous degeneration of the inner zone.

M. Charcot considers it impossible not to look upon these nodules as tubercular agglomerations. The solidification of the tissue is not simply due to the presence of the products of ordinary inflammation, such as leucocytes, epithelial cells, fibrinous exudation, etc., but it results from the invasion, first of the alveolar walls, and then of their cavities, by a peculiar embryonic tissue. Caseous degeneration affects first those parts of the nodule nearest the bronchiole, the centre of the new growth; and, later on, it invades the peripheral parts. The embryonic zone, remarkable for the presence of giant cells, represents the less advanced phases of the process, and it is there especially that the anatomical characters of the morbid products are clearly distinguished. Between the nodules the lung tissue presents the characters of common broncho-pneumonia; thus, some of the alveoli are filled with pulmonary epithelial cells, swollen or in process of proliferation (splenification), others are filled with leucocytes, fibrinous substance, or gelatinous exudation (broncho-pneumonic hepatization.) A tubercular nodule may be completely surrounded by such inflammatory products, which have the appearance of a second zone outside the embryonic zone. These different products of common inflammation may present all the different degrees of granulo-fatty or mucous degeneration, but they never form a homogeneous, coherent mass of vitreous or caseous appearance, like that seen in the centre of a tubercular nodule. From this, M. Charcot concludes that even in the so-called "acute pneumonic phthisis," caseous degeneration never has the origin attributed to it by authors, but takes its rise in the middle of the tubercular agglomeration, growing at the expense of the specific embryonic neoplasm, and he considers that the products of simple inflammation never take a prominent part in "yellow solidification" of the lung. Naturally, if alveoli, filled with simple inflammatory products,

are intermingled with tubercular nodules undergoing caseous degeneration, they will become involved in the process, but their implication is a purely secondary and subsidiary part of the process.

What has just been said of acute forms of caseous pneumonia is true, *à fortiori*, of the more chronic forms.

The Pathology of Tetanus and Hydrophobia.

In a paper on this subject, read before the Royal Medical and Chirurgical Society of London, in December last, Dr. JOSEPH COATS described the lesions met with in these diseases.

In tetanus the central nervous system showed hyperæmia and certain appearances in the neighborhood of the blood vessels. In the spinal cord and medulla oblongata, pons varolii, corpora quadrigemina and corpus striatum, but chiefly in the two first named, there was a granular material around the vessels, probably an exudation. In the medulla oblongata it was noted that a longitudinal vessel in the posterior parts was particularly affected; and that here, as well as in other parts, there were occasional hemorrhages. In the convolutions there was an exudation of a yellow fluid outside the smallest vessels, the medium-sized ones (which were those affected in the cord and medulla oblongata) having mostly escaped.

In hydrophobia there was in the central nervous system an aggregation of leucocytes around the blood-vessels. In the spinal cord, medulla oblongata, pons varolii and corpora quadrigemina, it was the medium-sized vessels which were so affected; in the convolutions it was those of small or capillary size. The salivary glands were infiltrated with leucocytes which had special relations with the blood vessels. The mucous glands of the larynx were similarly affected, though much less intensely. The kidneys were hyperæmic, with aggregation of white blood corpuscles within them. The pathology of these two diseases was then discussed, and it was pointed out that there was a great similarity in the distribution of the lesions in the central nervous system, as well as a certain analogy in the kind of lesion. The special distribution of the lesion was compared to the localization of the tubercles in tubercular meningitis, and was ascribed to physiological and anatomical peculiarities of the circulation. Attention was also drawn to the fact that in hydrophobia the lesions were not confined to the central nervous system, while in tetanus facts were deficient in this regard, but a parenchymatous affection of the liver, kidney, etc., was asserted by one author.

The special localization of the symptoms in both diseases, in the tongue, throat, and neck, was associated with the special prevalence of the lesions in the medulla oblongata, and especially in the neighborhood of the nuclei of the nerves in the floor of the fourth ventricle, etc., it being pointed out that the principal nutrient vessel of the medulla was specially related to these nuclei of gray matter. It was concluded that in tetanus and hydrophobia there seemed to be two different poisons, each of which, circulating in the blood, attacked the central nervous system. These agents irritated the nervous system; but, as they were different in nature, so the kind of irritation they produced was different. There was, however, a remarkable similarity in the localities irritated by them, and these seemed to be specially the spinal cord, medulla oblongata, and corpora quadrigemina, and to a lesser degree the cerebral convolutions. The irritation seemed to centre in the medulla oblongata, and in a particular region of it; this localization being probably determined by the anatomical and physiological relations of the nutrient vessels.

The high temperature met with in hydrophobia, and sometimes in tetanus, was regarded as not inconsistent with these views.

Amyloid Degeneration of the Kidney.

The following case of amyloid degeneration of the kidney, reported by Dr. WEBBER, in the Boston *Medical and Surgical Journal*, May 9th, 1878, is interesting for its complications:—

The patient entered, April 16th, with chronic Bright's disease. She had an attack of purulent otitis while in the hospital; was discharged at her own request. After she went out she did not feel well, and three weeks before readmission she took cold, had great swelling of feet, urine scanty and red in color. Five months before readmission there was numbness in the left side, face, arm and leg, which disappeared from the face, but persisted in the arm, with coldness extending to the shoulder, and prickly sensations in the tips of the fingers. At times there was twitching of the left arm, sufficient to keep her awake or prevent dressing. While in the hospital she had diarrhœa, which was quite persistent; a bed sore; scanty urine, passing only from three to nine ounces in twenty-four hours, the specific gravity 1.007; much albumen; when examined no casts were found, but there was a little blood. There was nothing in the symptoms to call attention to the pelvic organs, or to arouse suspicion of the condition in which these were found; the same may be said of the necrosis of the skull.

Autopsy.—In the middle of the frontal bone a ragged, eroded spot, about one inch in diameter, was found, the irregular cavities in the bone being filled with pus; skin not discolored over this; beneath, the dura mater was somewhat reddened, and there were a few drops of pus on its surface as well as on the pia mater. Longitudinal sinus was obliterated for about an inch or an inch and a half. No meningitis over temporal lobe; no phlebitis or thrombosis of lateral sinus on right side. There were no adhesions of the pia mater at vertex or over the frontal region; brain substance normal.

Liver was contracted, furrowed, wrinkled, on section presenting whitish streaks in the vicinity of the depression; lobules of a yellowish-white color, surrounded by red, not amyloid. Kidneys were rather small; on section, lobules indistinctly marked, coming rather near the surface; cortical substance mottled, but mostly of a dirty white color; some amyloid degeneration. Spleen was not amyloid.

Intestines were matted together near the pelvis, and there was a collection of pus on the right side, behind the uterus. There was no ulceration. Bladder was thickened and red, and ulcerated at one point, where there was a perforation. In the uterus were found four or more fibroids at the upper part—two as large as walnuts, one in the posterior wall, the other subperitoneal and pediculated.

The Pathology of Concussion.

The *British Medical Journal*, Dec. 29th, 1877, says: A new light has been thrown upon this obscure question by the experimental investigations which M. DURET, already so well known for his careful anatomical and experimental researches on the nervous system, has recently laid before the Société de Biologie. A mere oscillatory disturbance of the encephalon is not a satisfactory explanation of the loss of consciousness and the cardiac and respiratory troubles which supervene after a violent blow on the head; and it is contrary to what we know of the physical and physiological condition of the encephalon to believe that such oscillations could be

so slight as to produce such marked disturbances of function without effecting at the same time some anatomical alteration. Blows on other organs do not alter their functions without leaving traces of structural change. In his experiments on animals, M. Duret was able to reproduce the symptoms of concussion in the human subject in all its degrees of temporary loss of consciousness with slow respiration and slow pulse, greater duration of the same phonomena, and, lastly, sudden death. As blows upon the head produced results difficult to analyze, he proceeded by making a small opening in the cranium by means of a perforator, and injecting various fluids through this. Sometimes he used water, sometimes coagulable substances, such as gelatine. As experiments upon the cerebral hemispheres proper have shown that these may be removed in almost their entire extent without producing the cardiac and pulmonary symptoms of concussion, he was led to expect that the medulla was the part in which the lesions, if any, would be found. By injecting a large quantity of fluid, he succeeded in bursting the fourth ventricle and tearing up the aqueduct of Sylvius; and, as the same result followed the injection of a coagulable fluid which could be traced, he was able to demonstrate that the effect was due to the tension of ventricular fluid. By cutting away the cervical muscles, the occipito-atloidean membrane may be laid bare, and its respiratory pulsations watched or recorded by the graphic method. When fluid was injected into the cranial cavity, this membrane became tense, pulsation ceased, and all the clinical phenomena of a shock manifested themselves; but, on perforating this membrane with a bistoury, an escape of cerebro-spinal fluid was followed by the disappearance of all the symptoms. In addition to these results, M. Duret was able to discover numerous small hemorrhages in the substance of the medulla, and in the subarachnoid spaces, principally at the base, but also over the convexity of the brain. He confirmed these results by directly operating upon the medulla by means of a sound introduced through a small opening in the occipito-atloidean membrane, with which very limited contusions of parts of the medulla and the floor of the fourth ventricle could be caused. According to these experiments, therefore, it is to changes in the tension of the cerebro-spinal fluid, and not directly in the cerebral pulp itself, that we should refer the phenomena of concussion.

PHYSICS, BOTANY, CHEMISTRY AND TOXICOLOGY.

II. BOTANY.

Botanical Statistics.

The *Canadian Pharmaceutical Journal*, December, 1877, states that at a Botanical Congress, held at Brussels, Professor MORREN gave some interesting particulars of the number of plants known at different periods of the world's history. The writers of the Bible mention, definitely, some 500 different plants, while about 50 others are spoken of in general terms. Hippocrates gives the names of 234 plants; Theophrastus, 500; Dioscorides, 600; Pliny, 800. From the time of the latter writer until the sixteenth century, little progress seems to have been made. About the latter period the works of Gesner appeared, in which only about 800 plants were mentioned; but, toward the close of the century the number had increased to 6000. In the next century we find the "Historia Plantarum" of John Ray, which treats of 18,665 different species. Linnæus, the great botanist, wrote in the eighteenth century, and clearly described 7294 plants, distributed over 1239 genera. In our own century, the increase of botanical knowledge has been most rapid. According to Persoon (1805–7), 25,000 to 26,000 species were known. In the catalogue of Steudel (1824), are enumerated 59,684 phanerogams and 10,965 cryptograms; in all, over 70,000 plants. Loudon gives the names of 31,731 species and 3732 genera; and Lindley (1846) divides the phanerogams into 66,435 dicotyledons and 13,952 monocotyledons. Later on (1853), the same author enumerates 12,480 cryptogams and 80,446 phanerogams. Lastly, in 1863, Bentley gives the number of known species at 100,000 phanerogams and 25,000 cryptogams. It is stated that about 40,000 distinct species of plants are now cultivated in greenhouses and gardens. When we consider the vast number of varieties into which some of the species are divided, the number of named plants must be truly enormous.

Description of the Dioscorea Villosa.

The increased attention which this article has obtained of late years from the regular profession gives interest to the following description, taken from the *American Journal of Pharmacy*, February, 1878:—

Dioscorea villosa, Lin.—This is the only representative in the United States of the nat. ord. Dioscoreaceæ, and is known by the name of wild yam. A number of species of the same genus occur in the East and West Indies, the most important of which are Dioscorea alata. *Lin.;* the white negro yam, D. triphylla, *Lin.;* the buck yam, D. trifida, *Lin.;* or Indian yam, D. bulbifera, *Lin.;* the Ceylon white yam and several others comprised in D. sativa of *Linnæus.* They are generally cultivated in tropical countries for their tubers, which attain a considerable size, weighing, frequently, thirty to forty pounds, and, though quite acrid in their fresh state, are cooked and

used as food. They contain starch as their valuable constituent, which appears, generally, to be about fifteen to eighteen per cent. of the weight of the fresh tuber, but may occasionally reach twenty-four per cent., according to Sheir (1847), or according to Grouven (1856), fall to eight per cent.

The rhizome of the indigenous species has a very different appearance.

The wild yam occurs throughout the United States, from New England southward to Florida and westward to the Mississippi, and is quite common in the southern section. It grows in thickets in moist localities, its slender herbaceous stems running over bushes and attaining a length of ten to fifteen feet and more. The plant is dioecious, the greenish staminate flowers are in paniculate hanging bunches, the pistillate flowers in simple drooping racemes. The leaves are quite variable, frequently alternate, but sometimes opposite, or even in whorls of four to six; the latter appears to occur oftener in the South. The leaves are broadly ovate, with a heart-shaped base, entire or wavy at the margin, conspicuously pointed, with nine to eleven ribs, nearly smooth above, and more or less downy, but never villous beneath. The fruit forms a triangular capsule, which is conspicuously winged on the angles, and the pendulous bunches of which are quite striking, and make the plant easy to identify.

The rhizome is horizontal, about one-half inch in diameter, somewhat flattened from above, repeatedly forked or branched in various directions, so that the entire rhizome covers a space six to twelve inches in diameter, the branches bearing a slight resemblance to ginger. Upon the upper surface, at irregular distances, are the circular, more or less concave, scars, left by the overground stems; beneath, and on the sides, at a distance of about half an inch, are the simple, wiry rootlets, about two to four inches long. Rhizome and rootlets are of a light or yellowish-brown color, and break with some difficulty, exhibiting a compact white tissue, with numerous scattered wood bundles of a yellowish color. Odor is absent, the taste, at first insipid, soon becomes strongly acrid.

It is regarded to possess antispasmodic, diaphoretic, expectorant and emetic properties; and has, among other complaints, been recommended in bilious colic, in the form of an infusion, made with one ounce to the pint, one-half being taken at a dose. In Virginia, and probably in other States, it is known among the negroes as rheumatism root, it being considered a sure cure in that complaint.

Continued boiling impairs the acrid properties of wild yam, the principle being either volatilized or altered by heat; it has not been investigated. The rhizome contains also a considerable proportion of starch.

Œnothera Biennis in Mucous Inflammations.

Dr. JAMES F. SULLIVAN writes to the *Pacific Medical and Surgical Journal*, January, 1878:—

Œnothera biennis, or evening primrose, which is indigenous to nearly all parts of the United States, possesses valuable properties as a mild sedative and alterative in many diseased conditions of mucous surfaces, especially the gastric, intestinal and vesical. It is useful in some forms of dyspepsia, particularly those accompanied by an irritable state of the stomach and of the bladder, as indicated by frequent vomiting and micturition. Having prescribed the remedy for eight years, I have been able to carefully note its effects, and am convinced it will be an important addition to our list of medicines. A brief history of a few cases will best illustrate its action.

CASE 1.—A man, aged 26, of active habits, had dyspepsia for five years. His most

distressing symptom was an almost constant pain in the region of the bladder, with frequent micturition. He had been treated in various ways without benefit, and was more than once sounded for stone. He was given half a drachm of fluid extract of œnothera with a drachm of tincture cinchona comp. in water, just before meals, with immediate and permanent relief.

CASE 2.—A gentleman, who had been a dyspeptic for many years, had suffered especially from frequent vomiting of food, distress after eating, and restlessness at night, which was aggravated by a desire to urinate. Half a drachm of the fluid extract, just before eating and at bedtime, promptly checked the vomiting, allayed the irritability of the bladder, and gave him refreshing rest at night.

CASE 3.—Mr. M., aged 40, while convalescing from typhoid fever, was attacked with an obstinate dysentery, with severe tenesmus and frequent discharges of bloody mucus. For five days the disease resisted every known remedy, including anodyne enemas, calomel and opium, turpentine emulsion, etc. All other treatment was then discontinued, and twenty-five drops of fluid extract of œnothera was given every three hours. The dysenteric discharges entirely ceased after the second dose, and the patient had a natural fecal discharge within twelve hours.

Dr. N. S. DAVIS, of Chicago, has recently found valuable results from this remedy (*Quarterly Abstract of Medical Science*, February, 1877). He says: "From my own clinical observation I am inclined to regard it as a mild but efficient sedative to nervous sensibility, acting more especially on the pneumogastric nerve."

Its chief value, I believe, will be found in typhoid fever, to the treatment of which it is peculiarly adapted by its soothing action upon the intestinal mucous surface. I am convinced that it essentially modifies the inflammatory condition which precedes ulceration. The usual dose in typhoid fever is from fifteen to thirty drops every three hours. There is no danger of an overdose, and I have known a tablespoonful of the fluid extract to be given every two hours, by mistake, till two ounces had been taken. In that case it seemed to revive the patient, after the manner of a stimulant, and I am not sure that it might not be advantageously given in large doses in some cases. The fluid extract of œnothera is not incompatible in mixtures with any other medicine. Its flavor resembles that of cold tea, and it is acceptable to any condition of the stomach. It appears to be well worthy the attention of the profession, and the writer would be pleased to learn the results of its use in the hands of other practitioners.

III. CHEMISTRY.

A New Test for Morphia.

In the *Berichte der Deutsche Chemisches Gesellschaft* quoted in the *Chemist and Druggist*, December 14th, 1877, G. PELLAGIE describes a method whereby very small quantities of morphia may be detected, dependent on the conversion of the morphia into apomorphia. The substance is first dried by a gentle heat, and then dissolved in hydrochloric acid. A small quantity of pure concentrated sulphuric acid is added, and evaporated at 100° to 120° C. in an oil bath. This brings out a purple color, which is easily recognized by contrast with the carbonized matter. When the hydrochloric acid is evaporated, a new supply of the same is added.

The solution is then neutralized with sodium bicarbonate, whereupon a violet color is produced, which does not change on exposure to the air, and is not removed by ether. On the addition of a few drops of a concentrated solution of iodine in hydriodic acid, the violet is changed into green, and the green substance is then soluble in ether, with a purple tint. These appearances indicate the presence of apomorphia. Codeia gives similar reactions, but is distinguishable from morphia by ether. Brucia, treated in like manner, yields a blue color when neutralized with the soda salt, which changes to a faint red when the iodine is added.

Detection of Mercurials in Animal Solutions.

In the *Vienna Medical Year Book*, E. LUDWIG gives a process which consists in the substitution of copper or zinc in a finely-divided condition for the quicksilver. Take 500 c.c. of the suspected liquid, and acidify with 1 to 2 c.c. hydrochloric acid warm to 50° or 60° C., and actively agitate the mixture with 5 grammes of the metallic powder. The quicksilver falls in about half a minute. The liquid is filtered, and the remaining solid matter is washed and afterward dried at 50° to 60° C. The quicksilver may be obtained by distillation. Certain animal matters pass over at the same time, which are to be destroyed by passing over red-hot oxide of copper. The author says he has proved this system by more than a hundred experiments. He has detected $\frac{1}{10}$th of a milligramme of corrosive sublimate in 500 c.c. of wine, 1 milligramme in 380 grammes of liver and in 800 of brain.

IV. TOXICOLOGY.

Poisoning by Prussic Acid, with Recovery.

The following interesting case is given in the *Medical Times and Gazette*, January 12th, 1878, from the clinic of the University College Hospital, London :—

A. J., a well-nourished boy, three years old, was brought to the hospital by his mother, who said that shortly before (under half an hour) he had eaten several bitter almonds, number unknown, as he took them from the shop which she kept. Patient was lying apparently unconscious in his mother's arms, slightly cyanotic and markedly pale, with eyelids closed. On raising the eyelids the pupils were seen to be moderately dilated. The arms were stiffened through tonic spasm of the muscles, enough for the anxious mother to say that the "death-suffering" had already commenced. In fact, the mother thought she was carrying a dead child. No odor of hydrocyanic acid could be detected at the mouth; the breathing was very low, with no catch in the act of respiration. The pulse could not be felt at the wrist. There was no paralysis of sphincters. Immediately a dose of sulphate of zinc (thirty grains) in a large quantity of warm water was administered, though with some difficulty at first; and this was followed by the administration of a large quantity of the mixed oxides of iron. This preparation was speedily prepared by adding four drachms of the liquor ferri persulphatis (P.B.) to forty grains of protosulphate of iron dissolved in about one ounce of water, and then adding enough liquor sodæ to produce full precipitation and leave the mixture slightly alkaline. As the emetic had no effect, in a very few minutes a finger was pushed far down the patient's throat, and reflex vomiting excited in this manner. The vomited matters

contained several fragments of undigested almonds, and had a most powerful smell of prussic acid. The child partly rallied, and the pulse could just be felt, very weak and very rapid, at the wrist. No marked Prussian-blue color was noticed in the vomited matters. Not being sure that all the almonds had been discharged, some more sulphate of zinc was administered, and large quantities of warm water; but tickling the throat had to be again resorted to, as the patient was returning to his comatose condition. This produced fresh vomiting, the vomited matters containing a larger amount of almonds, and having the same powerful odor as before, which did not disappear entirely for many minutes. The further course of the case was marked by light improvement after vomiting, with speedy relapses toward the comatose state; so that it was not for nearly an hour and a half that all dangerous symptoms had subsided, and the pulse become fair at the wrist. Towards the end recovery was much hastened by the administration of small doses of brandy, which had a very marked effect on the pulse. The child was then put to bed, when it at once went to sleep, and was discharged perfectly well the next morning, eighteen hours after admission.

The most noticeable feature in this case was the frequent rallying after the act of vomiting, with the speedy relapses, which latter were evidently due to the formation of fresh hydrocyanic acid. Had an amount of the poison equal to that which was slowly evolved from the almonds been taken at once, no doubt the result would have been speedily fatal, notwithstanding the energetic treatment.

On being questioned, the mother said the child had given a cry when the symptoms commenced, but it was difficult to determine from her account whether it was the characteristic cry or not.

Are the Salts of Copper Poisonous?

On this subject the *Chemist and Druggist*, November 15th, 1877, says:—

It has now been finally determined by the researches of various chemists that copper is invariably present in the liver and some others of the larger organs of the body. It is true that it occurs in small quantities only. But its presence is undoubted. Such being the case, we can hardly doubt that it is necessary in some unexplained way to the proper fulfillment of the functions of the body. The experiments of Dr. Paul and Mr. Kingzett, described by them at the Conference, prove at least that when considerable quantities of copper are taken, the system refuses to absorb more than a very small amount, and that it rejects the remainder without difficulty.

Numerous facts have been brought forward recently which prove that small quantities of copper may be taken for long periods, without the slightest effect on health. Inhabitants of copper mining and smelting districts, who inhale copper with the air they breathe, and drink it in their water and tea, are not remarkable for a high rate of mortality or disease. Other facts might be adduced to the same effect.

When these points are considered, it is impossible to believe that peas or pickles are deleterious when colored with less than a quarter of a grain of copper per ounce, or to agree with those who say that such preparations are injurious to health, or destructive to life.

At the same time, like most of the mineral ingredients of the human body, copper is undoubtedly poisonous when taken in large quantities. But no one would think of denouncing the use of salt with our eggs because persons have been poisoned by consuming large quantities. We do not label potassium as a poisonous metal, or put

nitre on the poison schedule because an ounce of the latter has been known to cause death. Sulphate of iron is decidedly poisonous when taken in quantity, but no one would therefore forbid the use of steel wine or chalybeate waters.

Poisoning from Glanders.

The following singular case is given in the *Lancet*, November 24th, 1877, by Dr. GEORGE SHEARER, of Liverpool:—

James H——, aged 18, a carter, was sent to the Workhouse Hospital three weeks ago (May, 1866), supposed to be suffering from syphilis and general debility. He had sore throat, raucous voice, marks of old pustular eruptions on the body, and swelling of the left foot, which was marked with livid discolorations. Nothing was done for him at the hospital, and while at home, about a fortnight later, his right arm swelled tremendously, then the left, then the right foot, on which bloody blisters formed and burst, new blisters developing rapidly in the track of the discharge. His eyes swelled, and he lost sight in them; the nostrils swelled out laterally "like a horse's"; the upper lip swelled, and protruded fully two inches from the teeth; the throat and neck became spotted black, and swollen immensely. For three months, *i. e.*, from the beginning of March, 1866, he had had sore-throat and slavering at the mouth, with fetor of the breath, at which date he believed he had received infection from the matter of an abscess on a horse's thigh, which he was in the habit of dressing. He had at the time a linear cut in the hand, and the first symptom was a festering yellow sore in the track of this wound, made up of separate yellow pustules. As soon as the wound and its pustules dried up, an eruption of pustules, each as large as a fourpenny-piece, came out all over the body, and while they stood out he continued highly feverish. He was removed to the Royal Infirmary, where he died in ten days. Before his removal he had become quite maniacal at times, jumping about and biting like a mad dog, and hawking up immense quantities of clear, viscid, glairy, tenacious fluid, of which strings could be drawn out and carried in unbroken tenuity quite around the room. When he died, the neighbors observed such an alteration in his features that they said he had "not the features of a Christian, but those of a donkey." It is interesting to remark that the horse got well of the abscess, and was in harness at the time of the patient's death. There was, unfortunately, no post-mortem examination.

Poisoning by Methylated Spirit.

Dr. VIGER (*Annales Médicales de Caen*) states that he has seen two cases of this form of poisoning in confirmed drunkards. In the first case, a prisoner came to consult him, complaining of violent pain in the head and stomach; shortly afterward he fell into a state of complete prostration, and died on the following night. Another inmate of the same prison showed at first nearly the same symptoms; he was perspiring, with a stupefied manner; the pupils were much dilated; and he soon fell into coma with complete insensibility. The next day he was attacked with violent delirium, which, however, speedily abated. The pupils were still dilated, and his sight was completely lost for the time. This state only improved very slowly, and twenty days afterward sight had only partially been re-established. M. Viger found that these two patients had for a long time used methylated spirit, which they found in an unrectified state in the form of varnish in a cabinet-maker's shop belonging to the prison. They first precipitated the gum-lac by water, and then drank the spirit. M. Viger comes to the conclusion that the symptoms observed in

these conditions give warrant for classing methylated spirit among narcotics producing stupefaction and delirium, since dilatation of the pupil, sleep-stupor, as well as complete loss of vision, have been found. These well-defined properties may, perhaps, give a place to this form of alcohol in the list of therapeutic agents.

Poisoning by Custards and Ice Cream.

An able paper on this subject, by Dr. J. S. WELLFORD, appears in the *Transactions of the Virginia State Medical Society*, 1877. After repeating several cases, and comments upon them by various writers, Dr. Wellford proceeds:—

From a careful investigation of all the facts, I have come to the conclusion that the true cause is some decomposition in the albuminoid articles used, viz: the milk and eggs, which may be aided, perhaps, by the sugar. The symptoms described as having been produced by cheese are so exactly like those in these cases, that we may fairly assign them to a similar cause; and I learn, by a private letter from Dr. Kedzie, the able President of the Michigan State Board of Health, that he has analyzed several specimens of cheese which had caused similar symptoms, without detecting any mineral poisons whatever. Nearly all these cases occurred in hot weather, and in most the article had been kept some time. Besides, when we reflect how liable milk is to become impregnated with medicinal and other substances by the food and ingesta of the animal furnishing it, I think we may more justly attribute the symptoms to the milk than to the flavoring. I know it has been contended that, if the vanilla itself is not poisonous, it is frequently prepared with an oil which is or may become an irritant poison; but I do not see why, if this is true, we do not have these cases in winter as well as in the hot seasons of the year.

To satisfactorily determine this point would require more chemical knowledge and experience than I possess; and I shall subserve my purpose if I can attract sufficient attention to the subject to induce physicians to report such cases, and to excite chemists to examine the article producing the symptoms. In none of the cases reported has the subject of the decomposition of the milk been alluded to. In the German cases, it was attributed by some to cardol, and by others to the crystals of the vanilla. In the Charlottesville cases it was attributed to mercury, and in some others to malicious poisoning.

Subsequent to reading the foregoing paper to the Society, several other cases have been mentioned to me by different members. In one instance, nearly fifty persons attending a wedding festival were affected; but, as it occurred some years ago, and it was attributed to other causes, the gentleman mentioning it could not give any satisfactory details as to the seasoning used.

Vegetable Antidotes for Snake Poison.

In the Atlanta *Medical and Surgical Journal*, January, 1878, Dr. W. S. GRANT mentions various plants popularly supposed to be antidotal to the venom of snakes. Chief of these is the *cnicus benedictus* or *centaurea benedicta*. The following instance is given:—

Last August I saw a young lady one and a half hours after she had been bitten by a large rattlesnake's pilot (upland copperhead.) The reptile had bitten her twice on the instep. One gill of whisky was at once given. When I saw her I was slow to do anything, and wanted to know what the whisky would do. But as the patient grew worse, I mashed up three seeds of the blessed thistle (she then had double vision) and gave them, which did not appear to exercise much influence on

the pain or blindness. In ten minutes I gave her three more, and in the next ten minutes three more. In thirty minutes from the time of giving the first three seeds her vision was perfect and she had no pain. She was bitten at 5 P.M. She ate her supper at the table after dark. Next morning she was out at work, and has suffered no inconvenience since.

I have reason to believe that they are a sure and ready antidote for the bite of all reptiles.

In the course of my botanical studies, I have found a number of plants which, in their different localities, have a high reputation as remedies for snake bites, and as I am now engaged with this subject, I will record their names and leave them to the future experimenter.

The *platanthera stricta* is an orchid, which grows abundantly near the sea-coast, but thins out up the country, until it is wanting in the latitude of Atlanta. This plant, by some authors, is called habenaria cristata. I can only repeat what is told me of it. In Wayne and Glynn, and other portions of lower Georgia, I have been very much interested to see how strong the faith was in this plant. Indeed, I was assured by them, so great was their faith, that the rattlesnake would not bite a man if he had the root in his pocket. One gentlman, a great deer hunter, told me that he had cured his dogs with it when bitten. The tincture of the root was used.

The *baptisia perfoliata* one of the pea tribe of plants, and generally found growing in the same localities as the platanthera, has a like reputation, but is not so well known. The baptisia grows on the high and dry sandy ridges, while the platanthera prefers lower and damp situations.

Prof. W. T. Feay, a superior botanist, in a letter to me some years since, tells of the use of the baptisia as follows: "A gentleman in Florida had a negro woman bitten by a rattlesnake. A physician was immediately sent for. But a neighbor in the meantime recommended the use of this plant in decoction. It was done, and when the physician came the negro was well."

The *amsonia ciliata*, which I have seen only in Montgomery and adjoining counties in Georgia, is another of these remedies. Also the *lycopus virginicus*, a small plant, which I think may be found on nearly every stream in Georgia.

The following plants are mentioned in works on pure botany, as possessing antidotal virtues in the rattlesnake's bite: the *liatris squarrosa*, the *nabalus albus*, and the *agave virginica*.

I am satisfied that the blessed thistle will serve every purpose, but there can be no harm in multiplying reliable medicines.

I now come to the most difficult part of my work, namely, to offer a plausible explanation of the *modus operandi* of these remedies when they relieve a patient of the terrible suffering and death which result from the bite of venomous serpents. When a man is bitten, the poison which is injected into the wound through the fangs of the serpent is very quickly absorbed and distributed by the arteries, through the whole system, to wither and destroy the vitality of every part. I am disposed to believe that th se remedies, when they do answer the purpose at all, do it on the antidotal principal. Wherever in the system they meet the poison, they at once neutralize it, as fully and as effectually as an alkali will neutralize an acid. It is very evident to me, that these poisons destroy life by their direct action upon the vital nerve centres, by either paralyzing or destroying their function. I must think that these nerve centres escape organic injury almost wholly, and are only injured functionally; for if it were otherwise, it would be very certain that no person who is

bitten by a poisonous snake could, by any possibility, recover from it for some time, and not until the organic lesion of the centres had been healed. And yet it is quite a common case for the patient to recover perfectly within a few hours. How could this possibly be if the nerve centres suffered an organic lesion?

I think that the symptoms in a bitten person all point to destroyed or perverted function of the nerve centres, as the principal effect of the poison. If this opinion be true, then it seems to me that we cannot well reach any other conclusion than that the remedy antidotes the poison by chemically neutralizing it. Let us take the only other possible view and see how it answers. The only other way by which a remedy can counteract a poison in these cases, is by leaving the poison itself alone, and relieving or remedying the evil it does. In its passage through the system, the poison comes upon a nerve centre and straightway throttles it, as we may say. But the remedy in quick pursuit, finds the centre disabled, and immediately, by its own inherent virtue, restores it to health. And in this manner the remedy pursues the poison, undoing the evil it has done, until finally the poison is either exhausted, or, what is more probable, it is expelled from the system through some of the emunctories Is this a reasonable view of the action of the poison and its remedy? I cannot think that any one will attempt to maintain it.

Lead Poisoning from a Pistol Ball.

The following curious case is reported by Dr. J. S. NOWLIN, in the Nashville *Journal of Medicine and Surgery*, January, 1878:—

Mr. James F., a member of Colonel Starnes' regiment of the Confederate army, was wounded in the left groin, in the year 1862. The ball made no exit and was not removed. The wound healed readily, and he felt no inconvenience from it for near fourteen years.

In the spring of 1876 his hip and leg began to pain him, after plowing all day.

In April his bowels became constipated and he suffered intense pain, with vomiting. This colic returned at short intervals during the summer, and he suffered with erratic pains. The blue line, on both the upper and lower gums, was marked.

In the fall, paresis of the muscles of the wrist began, and he soon had complete wrist drop. He has never had any other chance to become poisoned from lead than the pistol ball. He has partially recovered.

Recovery from Poisoning by Oxalic Acid.

The subjoined case is reported by Dr. D. B. MYERS, in the Ohio *Medical Recorder*, January, 1878:—

William Watson, Uhrichsville, Ohio, aged 60 years, shoemaker by trade, had some epsom salts in a drawer in which was also some oxalic acid for the use of the shop. Feeling unwell he took up a glass, and, by mistake, took up the acid for the salts; put over a tablespoonful of it into the glass, added some water, stirred it up and swallowed it down, and cried out, "My God! boys, I have taken oxalic acid instead of the salts; what shall I do?" He started, without his hat, and the glass in his hand, for the drug store, a distance of one and a half squares. I happened to be in the drug store at the time. He told me hurriedly what had happened; I turned to the druggist and told him to hand me some soda and some water as quick as he could. He did so. I put into the glass half an ounce or more of the soda, and filled it with water, stirred it and told him to swallow it quickly, which he did. It was no sooner down than it began to foam up like sour cider out of a barrel. As soon

as he was done throwing up, I handed him another of the same kind, with the addition of a little ipecac, say ten or fifteen grains. From this he threw up very freely, but not quite so much froth. The third dose was the same, with the addition of about twenty grains ipecac and thirty grains calcined magnesia; from this was a general emesis. He threw up much of the contents of the stomach. The fourth was the same, with the addition of some twenty grains prepared chalk; this acted as an emeto-cathartic. After this had calmed down we led him to his own house. As to time, weight, or measure of medicine, we have but little to say, only that it went right fast at first, for a while. No time to dream on such occasions.

After Treatment.—Ulmus pulvis, made into a thick mucilage, taken in doses of one-fourth to one-half pint three or four times a day, rice, starch, cream, etc. Vomited occasionally until fourth day, throwing up much of the membrane of the stomach. Dr. Thompson called to see him on the second day, and stopped at my office and said, "Your patient is gone up, he is vomiting all the membrane of his stomach." Mucilage, starch, rice, cream, etc., continued. No external applications. Fifth day, patient improving. Sixth and seventh days, improved rapidly. Tenth day, walked up town, and in two weeks went to work with stomach a little sore. Continued to improve, got well and hearty, and has been to work ever since, feeling no inconvenience from it.

Poisoning by Chlorate of Potassium.

Mr. GEORGE W. KENNEDY, PH. G., gives the following, in the *American Journal of Pharmacy*, March, 1878.

A case of poisoning by the above-named chemical occurred in November last, in the family of Dr. Kauffman, of Pine Grove, now Minersville, Schuylkill county. The case will be interesting, as there is but one on record previous to this where death has resulted by an excessive use of the drug, so far as I am informed—that of Dr. Fountain, of Davenport, Iowa, who took one ounce at a dose, and fell a victim to his temerity. The writer waited on the father of the deceased child, so as to obtain reliable information. I believe that the salt has been considered, both by the medical and pharmaceutical profession generally, as rather an innoxious remedy, comparatively speaking. No doubt to many this case will appear remarkable, and they would rather feel disposed to attach discredit to it, as the writer would feel inclined to regard the fatal result due to some other poison, were he not in possession of such information direct from the father of the deceased child, who is a practicing physician, and stands well in the estimation of the medical fraternity of the county where he resides. Many would hesitate to class chlorate of potassium as a poison, when we take into consideration that it is used in diphtheria and scarlatina in large doses with impunity, and is known in nearly every family, like Epsom salts or magnesia, or any other common drug; in fact, there are few who have suffered with the simplest or more aggravated form of sore throat but are familiar with it as a remedy which for convenience is often kept on hand.

For the reason stated, Dr. Kauffman kept a quantity of the chlorate in a tin box, and at the time of the accident the box contained approximately about four ounces. It was customary with the doctor to give his children, consisting of three (two girls and a boy), a few grains of the salt several times daily, for some time previous, as a prophylactic against diphtheria, as the disease was then prevailing to an alarming extent in a malignant form. On Tuesday morning, November 6th, 1877, between 10 and 11 o'clock, the children were left alone in a room in the upper portion of the

house, playing, while the father and mother were in the lower part, attending to their regular household affairs. The child, called Nellie, took the tin box from the bureau, containing the chlorate of potassium in the crystalline form, and began playing "Doctor," in imitation of her father. She gave the salt to her brother and sister, and at the same time, as near as can be estimated, ate about half an ounce herself. It is to be wondered at that a child only two and a half years old could eat so much of the salt, as it is anything but pleasant to the taste in such quantities; but being accustomed to its use and in a state of excitement, playing "Doctor," she ate it without observing its taste. Toward the last the children were perfectly quiet, making no alarm until little Nellie began to vomit; but, as the parents had no idea as to the quantity taken, and as no dangerous or serious symptoms were exhibited, and the doctor was not aware of the fatal case of poisoning on record, there was no occasion to feel alarmed. About an hour subsequently the doctor administered diluents freely, with the object of dissolving the salt; the child began to vomit violently, throwing off about one drachm of potassium chlorate, apparently in the same crystalline form as when taken, and continued vomiting until death ensued, about 5.30 P. M., making precisely seven hours from the time the salt was taken. Beside the emetic, also hydrocathartic effects were observed, the child dying of gastritis, or inflammation of the stomach, notwithstanding Dr. Dreher and the father did all in their power to save poor little Nellie.

This case teaches us to be very careful in using chlorate of potassium; keep it out of the reach of children, and even under lock and key; under no circumstances whatever should it be given in the crystalline form, as it seems to be a violent irritant to the mucous membrane of the stomach, and by not being readily soluble (it requires sixteen parts of water, at 60° F.) cannot easily be discharged, as was proven in this case. The child was given as much water and cream as she could drink, and to the last she vomited crystals of the chlorate.

Another peculiarity of the case was the strong inclination of the child to slumber, she being in a lethargic condition from the time it was first noticed until she expired. She gave no indications of pain, but was apparently in a stupor all the time. She had taken no other medicine for months, neither was she laboring under any disease, but was a fine, hearty and well-developed child.

A Case of Peculiar Poisoning by Cyanide of Potassium.

Dr. GEO. F. SOUWERS reports the following case in the Philadelphia, *Medical Times*, April 27th, 1878:—

I was called, March 27th, 1878, to see J. P., photographer, and elicited the following history. For some days he has been working with potassium cyanidum, both in substance and in solution, the drug being used in the course of his business. On the previous Monday he commenced to complain of soreness of the scalp over both parietal regions; heaviness of head; sleeplessness; pain in the lumbar region; some muttering delirium (which afterward became more active, the patient evincing a desire to walk around); ringing in the ears; swelling of the upper eyelids; loss of appetite; some nausea; bowels obstinately constipated, although when unexposed to the influences of the cyanide he has from two to four evacuations per day; on waking from cat-naps has a chill, which, in fact, awakes him before he can get soundly asleep; this is followed by a very slight sweat; he is short of breath during these attacks from the cyanide. On examination, the pulse runs about 78, slow and full; the skin is cool; pressure on the top of the head and back of neck is painful;

sensibility of skin over body is fair. On examining the eye the pupil is found, in a great degree, unresponsive to light; the face is dull, slightly flushed, and expressionless, the tendency being to close the eyes; the tongue has a peculiar darkish background, seen through the heavy white coating; the teeth, gums, and lips covered with sordes; the breath extremely fetid; the lungs and heart in good condition; no cough; abdomen tender on pressure; no spots on the abdomen or lateral aspect of the body; he has not been exposed to miasma, nor to the effects of bad drainage; is of temperate habit. The diagnosis arrived at was congestion of the brain, induced probably by exposure to the cyanide, with probably some constitutional effects from the drug, the system being in a general state of malaise. I arrived at this conclusion from the fact that he is entirely free from these spells except when exposed to the influences of the drug in question; it would seem also to produce the obstinate constipation; when unexposed there is no tendency to constipation. On the contrary, according to the patient's statement, verified by that of the family, there is unusual looseness of the bowels, from two to four passages per diem being the rule. The patient, previous to my being called in, had taken a dose of "mandrake pills;" these, however, failed to produce the slightest action. The treatment pursued consisted in a blister to the posterior cervical region, for its revulsive effect; for the sleeplessness a mixture of chloral, bromide of potassium, and morphia was given. For the constipation a pill containing quinia, croton oil, strychnia, and podophyllin was ordered every six hours until effective. Diet to be light and of easy digestion.

March 28th. The head is clear; less pain in the head; eye clearer and more responsive to light; still has ringing in the ears; tongue is slightly cleaner; tenderness of the abdomen not so marked; pulse 70-72, full and slow; skin cool; urine heavy with brickdust deposits; on testing it no albumen is found. The patient slept some during the night, but was somewhat delirious, evincing a tendency to walk around, to mutter, etc. Although the bowels opened slightly, giving passage to a very scant amount of fæces, of an extremely dark-green color, the constipation may be still said to exist, and for this are ordered pills similar to, but stronger than, those previously given, one to be taken during the afternoon, the other, if the bowels have not opened, at bedtime.

March 30th. To-day the patient is much better; the brain is clear, and the head free from pain or soreness; eye clear and bright; no ringing in the ears; no delirium; he has slept some this morning; the tongue is still heavily coated, but is of better color; appetite fair; skin warmer; pulse about normal. The pill, although ordered to be given during the afternoon, was not administered till 7 P.M. In half an hour profuse catharsis set in, which lasted off and on till about 8 A.M., when it ceased gradually. He was seen at 10 A.M., and nothing was ordered but quiet, low diet, and a slight amount of brandy. No opium was given, as the patient is of gross habit, and I deemed it better to leave the bowels soluble as possible, in order not to risk an apoplectic seizure, which seemed to be threatened early in the case. I may add that my patient has informed me that he has a friend in the same business as himself who is likewise liable to these seizures after working with the cyanide. If any gentleman can make suggestions, I should like to have them.

MATERIA MEDICA AND THERAPEUTICS.

I. PHARMACOLOGY.

Syrupus Ferri Phosphatis cum Quinia et Strychnia.

The *Pharmaceutical Journal and Transactions*, December, 1877, says:—

After reviewing the literature on this preparation, and noticing the defects of the different formulæ proposed for its preparation, GEORGE MASSON proposes the following, by which a colorless syrup may be readily obtained, of full strength and good keeping qualities:—

The syrup should be preserved from the air in bottles, well-filled and securely stoppered.

℞. Strychniæ.		24 grs.	
Quiniæ sulph.,		860 grs.	
Ferri sulph.,	4 ℥.	40 grs.	} Avoirdupois.
Sodæ phosph.,	12 ℥.		
Sacchari purif. contus.,	60 ℥.		
Acid. phosph. dil.,	48 ℥.		

Dissolve the quiniæ sulph. in aq. dest., with a sufficiency of acid. sulph. dil., precipitate with liq. ammon. q. s., collect on a filter, wash carefully, avoiding the use of too much water, and add to the acid. phosph. dil. in which the strychnia has been previously dissolved. Dissolve the ferri sulph. in Oij, and the sodæ phosph. in Ov of recently-boiled distilled water, filter the iron solution if necessary, to remove any oxidation, allow the solutions to cool to 130° Fahr., and then add very gradually, with constant stirring, the solution of soda to the iron; allow the precipitate to subside, remove the supernatant fluid and wash the ferrous phosphate by decantation with recently-boiled distilled water, then transfer to a calico filter, express quickly the remaining liquid, and dissolve in the dilute phosphoric acid. Finally, add the sugar, dissolve without heat, and subsequently add a sufficiency of distilled water to make the product measure ninety-six fluid ounces, each fluid drachm of which will contain one grain phosphate of iron, one grain phosphate of quinia, and one thirty-secondth grain of strychnia.

Glycerin in Pharmacy.

Mr. C. J. BIDDLE, PH. G., contributes the following to the *American Journal of Pharmacy*, January, 1878:—

Glycerin entered the list of preparations of the Pharmacopœia in 1850, and was transferred to the materia medica list in 1860; about this period it appeared to be beginning to claim the notice of pharmacists, as in 1865 Mr. Alfred Taylor, of this city, recommended its use in the manufacture of fluid extracts, and since then numerous formulæ have appeared in the pharmaceutical journals, the result of which was that our present edition of the Pharmacopœia contains a list of preparations called "Glycerita," and glycerin enters into about thirty-six other officinal

preparations. But its use is not limited to the few now officinal, and it can be advantageously used in many more preparations. Every pharmacist has a just pride in having his preparations to present an elegant appearance, and glycerin will be found useful as a help to accomplish this purpose.

The property glycerin possesses of preventing tincture of kino from gelatinizing has been known for some time, and frequently published.*

In 1874, at the request of Mr. Wm. F. Bender, Chief Apothecary at the Philadelphia Hospital, I began to use glycerin in syrup of wild cherry, and have used it since that time, always obtaining a much richer-looking syrup than the officinal, which contains all the virtues of the bark. The formula is as follows:—

℞.	Wild cherry, in moderately fine powder,	℥v.
	Sugar, granulated,	℥xxvj.
	Glycerin, concentrated,	℥j.
	Water,	q. s.

Mix one ounce of glycerin with four of water, moisten the powder and allow it to stand 36 hours in a close vessel; then pack it firmly in a conical percolator, and gradually pour water mixed with the remaining glycerin until a pint of filtered liquid is obtained; then proceed as usual. A formula somewhat differing from this in the details has been recommended in the *Druggists' Circular*, 1874, p. 59.

Glycerin has also been found useful in the preparation of several of the officinal tinctures, for the different classes of which it is used in different proportions. For the resinous tinctures, half an ounce in a pint is quite sufficient; it will produce a percolate of much richer color, and will more thoroughly exhaust the drug. For the astringent and those containing large quantities of coloring matter, one ounce in a pint will prevent precipitation for a much longer time than without it.

By following the general formula given below I have been able to produce very fine tinctures, taking tincture of myrrh for example—

℞.	Myrrh, in fine powder,	℥iij.
	Glycerin, concentrated,	℥j.
	Stronger alcohol,	Oj.
	Alcohol,	q. s.

Mix the glycerin with five ounces of stronger alcohol, and pour upon the myrrh, previously placed in a wide-mouth bottle of sufficient capacity; cork tightly, and allow it to stand for four days, with occasional agitation; then place it upon a filter, in a funnel, and allow the first added menstruum to filter through; mix the remaining stronger alcohol with one pint of alcohol, and gradually pour upon the myrrh, adding sufficient alcohol to obtain two pints of tincture.

Maceration, followed by percolation, produces a much finer tincture than direct percolation; in all tinctures for which glycerine is used I endeavor to keep them of full alcoholic strength of the Pharmacopœia.

Glycerin has another very desirable effect in resinous tinctures, as it prevents the accumulation of resin about the stopper and lip of the bottle, and will prevent the stopper from becoming fastened; also "the drop" that falls on the outside of the bottle, from time to time, can be easily removed with a dampened cloth; for these advantages alone it would more than compensate for the amount of alcohol necessarily used to cleanse the bottles containing such tinctures. Glycerin was recommended in compound tincture of cinchona as early as 1872.†

In the officinal wines it may be used with advantage also. Wine of ergot, of

* "Am. Jour. Pharm.," 1878, p. 299. † "Drug. Circular," 1872, p. 96.

superior quality, possessing a stronger odor and a richer color than the officinal, is made as follows:—

℞.	Ergot, in moderately fine powder,	℥iv.
	Glycerin, concentrated,	℥iss.
	Sherry wine,	q. s.

Mix the glycerin with five ounces of sherry wine; moisten the powder with this; place in a close vessel and let stand four days; then transfer to a funnel or percolator; press firmly and gradually; pour sherry wine upon it until two pints of filtered liquid are obtained. This method is to be preferred to making this preparation from the fluid extract, and would suggest that wine of ipecac be made in a similar manner, and that glycerin be used in the remaining wines.

In the preparation of solid extracts a small proportion has been recommended to be added, after evaporation to the proper consistence, to give them a plastic firmness, which is, at times, very desirable, and also prevents moulding.*

As an excipient, in pill masses, its virtues are too well known to need repetition here.

It may be substituted for honey in compound tincture of cardamom, and produce quite as richly-colored tincture; but in the camphorated tincture of opium the color is not so rich as in the officinal.

Glycerin has been recommended to take the place of carbonate of magnesium in the officinal waters made from oils; but I have failed to produce as good results as with the latter. It will not answer for camphor water, as camphor is not sufficiently soluble in glycerin, even when heated; for the camphor will volatilize before the glycerin is hot enough to dissolve it. But in extracts, mixtures, tinctures and wines of the Pharmacopœia, glycerin will be found useful.

Metamorphoses of the Cantharis Vesicatoria.

The *Chemist and Druggist*, November 15th, 1877, gives on this subject a notice of an article by M. LICHTENSTEIN:—

For forty years this author has been endeavoring to trace the history of the cantharides from the egg to the perfect insect. Only this year (1877) has he succeeded in the attempt. On June 27th he gathered some fecundated females from an ash tree and confined them in a glass jar containing earth. Two or three days after they laid, in little cylindrical holes they had made, white hyaline eggs, agglomerated in masses of thirty to sixty each. Seven days after, small larvæ, named triongulins, by Dufour, appeared from the eggs. They were a millimetre long, of a deep brown color, with the meso and metathorax and the first segment of the abdomen whitish. The abdomen has at the extremity two long threads. After numerous tedious and unsuccessful trials, the author persuaded these little creatures to feed on the stomachs of bees killed in the act of sucking honey from flowers. Five or six days afterward, when they had much increased in size, their skins split and a new form of larva appeared. These were milk white, without caudal appendages, and with a soft skin instead of the leathery envelop from which they had just emerged. After more unsuccessful trials these were induced to feed on the concreted honey of a bee of the genus ceratina. They grew and three times cast their skins. The jaws, at first smooth and pointed, gradually acquired on the inner surface one and then two teeth; the antennæ changed their form; the eyes, at first prominent, gradually diminished,

* "Drug. Circular," 1872, p. 139.

and after about thirty days, when the larva had increased to about two centimetres in length, it showed signs of wishing to change its condition. It was allowed to burrow in the earth in a glass tube which could be withdrawn for examination. Nine days after, on September 17th, it was found that the larva had changed to a true chrysalis with a coriaceous shell. It was slightly curved, of a clear brown, with the head and feet showing themselves under little rounded projections. The final transformation from the chrysalis to the perfect insect will not take place until next spring. Up to this time only the first stage of the metamorphosis, that of the two-tailed larva, has been known.

Resin of Podophyllin.

Mr. H. C. ARCHIBALD, PH.G., in a communication to the Philadelphia *Druggist and Chemist*, January, 1878, gives some useful hints how to make a superior article of this drug. He says:—

The requisites for a good commercial article are that it should be of a bright yellow color and light in weight. If made by the process of United States Pharmacopœia, the color is apt to be dirty brown, while if the evaporation of the concentrated tincture is carried too far, the resin will agglutinate, and is dried with great difficulty; at the same time the powder is heavy. This product, while it possesses the virtues of a good medicinal article, yet, from its density and color, is not very merchantable. The active principle of podophyllin consists of two resins, both of which are active cathartics; either dissolves from 70 to 75 per cent., and they are perfectly soluble in alcohol.

The first requisite in preparing a good, bright resin is in selection of the root: after grinding it finely, proceed with displacement, using alcohol 85 per cent., until the percolate ceases to give a precipitate when dropped in water; recover the alcohol by distillation, being careful not to carry the concentration too far, for fear of agglutinating the resin; pour the concentrated alcoholic extract into a precipitating vessel, which should be half filled with water, into which a small quantity of alum—about two drachms to every pound of root operated on, I have found sufficient—has been added, stirring well all the time. The podophyllin and all of the buterine are thrown down, and, by allowing the precipitate to settle, the supernatant liquor can be drawn off with a syphon. The residue is then thrown in a cotton strainer, washed with water, and finally the precipitated resin is spread evenly on trays made of muslin stretched on wooden frames, and dried by *atmospheric* temperature. *Under no circumstances* should it be exposed to the direct rays of the sun, or the heat of a drying room. If this process is carefully carried out, a resin of a beautiful bright yellow color will be the result. The yield from good root I find to be from 5 to 5½ per cent.

Chrysophanic Acid.

Mr. L. E. SAYRE, PH.G., communicates to the Philadelphia *Druggist and Chemist*, March, 1878, his experiments and experience with this drug:—

This new remedy is rapidly growing in favor, and it behooves the druggist to be wide awake to supply the demand.

The demand is for a cheaper article, and yet one that would be perfectly reliable. The quotations for this have been as high as $1.25 per gramme. Indeed, goa powder, from which it is made, has been sold for even as high as two francs per gramme. It has come down rapidly, however, till now it is somewhat within the bounds of reason.

There is an article sold as chrysophanic acid, having a very dark color; it resembles a solid, hardened extract (probably alcoholic). This, although I have not examined it, I believe to be very inferior. Its source may be from rhubarb, and it may contain, with it, the other coloring matters and some extractive of that drug. It produces an ointment of a dark brown color.

Chrysophanic acid should be of a yellow color. From a concentrated solution it crystallizes in orange-yellow tufted crystals, and yields an ointment of a bright yellow color. The writer has made some experiments with reference to its manufacture; to give them here, in detail, would occupy space almost uselessly; suffice it to say, there is no solvent or menstruum equal to benzole; benzine is very poor. Goa powder, percolated with the latter, produces a deep yellow solution, and upon evaporation yields the pure acid, but the yield is so small it is slow work to manipulate with this menstruum, as it only takes up about 10 grains in a pint. Goa powder yields to benzole, at ordinary temperatures, about 50 per cent. of the acid. 100 grains of the powder were carefully percolated until the percolate was almost colorless; the percolate evaporated yielded 47 grains. The dregs were subjected to the influence of boiling benzole repeatedly; by this means more crystals were obtained; this brought the yield of goa to about 78 per cent.

To prepare chrysophanic acid from goa or araroba powder, I submit the following formula as the most convenient, economical and reliable that I have found:—

Take of araroba powder a convenient quantity, say ℥j. add to this benzole one pint, shake them together in a good, strong Florence flask; place the flask with contents in a water bath and heat to temperature of 175°; shake well, and immediately throw the whole upon a fine muslin strainer, allowing the strained liquid to pass into a porcelain capsule, which is surrounded by a freezing mixture of pounded ice and salt; crystallization begins; a large crop of crystals soon appears; as soon as the crystallization ceases, pour off the supernatant liquid, or, better still, throw the whole upon a muslin strainer which is sufficiently fine to catch all the crystals; the liquid which passes the strainer, being a saturated cold solution of the acid in benzole, can be returned to the Florence flask, and the same operation repeated till the quantity of acid desired is obtained. As the dregs after this treatment, of course, contain still more of the acid, it is not wise to throw them away; they can be collected and treated with an excess of heated benzole, which, when strained as above, can be reserved for future operations, or, by distillation, recovered pure, and the chrysophanic acid collected. For the purpose of recovering the benzole and collecting the acid, an ordinary retort and receiver will not answer. I would suggest such a still as was figured in the *New Remedies*, January, 1877, page 10. The apparatus consists of a tinned-iron or copper kettle, into which fits a hood of double walls (the space between which is kept constantly filled with cold water). This is the condenser; the condensed liquid is caught by a gutter along the inner surface of the hood, at its base, sloping downward to the outlet pipe. Inside the tinned-iron kettle a large capsule of the benzole solution can be placed; after the recovery of the liquid, the capsule can be taken out and the crystals easily collected.

Chrysophanic acid, as I have said, is rapidly growing in favor, and I believe it will be labor well repaid to produce this article as cheaply as possible, either by more economical processes or through a more economical source. Mr. W. L. Lindsay, in *Pharmaceutical Journal and Transactions*, suggests physicia parietina, the common wall lichen, upon which I hope ere long to experiment.

In making the ointment (which is usually prescribed of the strength of ʒj. to ℥j),

Balmanno Squire says the acid should be thoroughly dissolved in hot benzole in the presence of fat, afterward cooling and allowing the benzole to evaporate. This is to avoid the gritty quality which the ointment is apt to present, and its activity by this process is greatly enhanced.

If the acid is first rubbed well in a mortar, with a little oil of almonds, then the unctuous ingredients added, I have found it to make a perfectly smooth and reliable ointment, which has been tested and proven to be very efficacious.

To the writer has come information of the successful treatment of several cases of psoriasis by this acid; many instances are reported through the journals of the cure of very obstinate cases of this disease and lupus, two of the most inveterate of skin diseases.

II. GENERAL AND SPECIAL THERAPEUTICS.

Laws of the Action of Drugs.

In an article in the *Practitioner*, January, 1878, Dr. JAMES ROSS, Manchester, says:—

In an article which appeared in The Liverpool and Manchester *Medical and Surgical Reports* for 1876, entitled "Morpho-Physiology and General Pharmacology," I endeavored to formulate several laws of the action of drugs. The explanation afforded is, of course, exceedingly general and vague; but the fact that any explanation is forthcoming, however defective it may be, affords grounds for hoping that the progress of science will render it more definite by the discovery of new laws, and the extension of old laws to the actions of a larger and larger number of drugs. I may be permitted to recapitulate such laws as have a bearing upon the degree of action produced by drugs, and the rapidity with which the action takes place, without stopping to illustrate these laws by specific examples.

1. Before an agent can produce a drug action it must be quantitatively or qualitatively heterogeneous to the organism; and, other things being equal, the more heterogeneous an agent is to an organism the greater will be its effect.

2. Inorganic agents which play an important part in the formation of structure, such as iron, phosphorus and sulphur, are either trivalent or of some higher degree of atomicity; and, as a rule, the compounds of the elements which possess the higher degrees of atomicity, even when heterogeneous to the body, act as tonics, while the compounds of those which are univalent or bivalent are irritants. This law has a sufficient number of exceptions to show that irritant or tonic qualities must depend upon other properties than the atomicity of the agents.

3. The greater the molecular mobility of an agent, other things being equal, the sooner it gains entrance into the body through the absorbing surfaces, and the sooner it is eliminated; and, also, the more general and diffused will be the action it will produce upon the organism.

4. The compounds of the elements with massive atoms are relatively long in being absorbed, and correspondingly long in being eliminated; and when the agents form, like the metallic salts, stable compounds with albumen, the length of time before they are eliminated is much increased.

5. The more massive the molecule of the element, other things being equal, the more definite and local; in one word, the more specific will be its effect, and that of

its compounds; and the smaller the quantity in the circulation which will be required to produce an appreciable effect.

6. In binary compounds both elements are represented in the effects, but the action of the heavier-atomed element will predominate. This law may be traced in the action of compounds of a higher degree of complexity than the binary.

No one will be more ready than I to admit the great imperfections of these laws; but the fact that they bring the nature and degree of action of a certain number of agents into a certain kind of relationship with their physical constitution, makes us hope that the science of the future will convert this relationship, which is now so general and vague, into a relationship which will be exceedingly specific and definite.

The Action of Certain Medicines on the Richness of the Blood.

In the *American Journal of the Medical Sciences*, January, 1878, Drs. E. G. CUTLER and E. H. BRADFORD give a study of the action of iron, cod-liver oil and arsenic on the globular richness of the blood. In two cases iron was given to healthy subjects. In the first there was, therefore, in this case no increase of the red corpuscles while iron was given; there was a slight decrease under ferrum redactum and tinct. ferri chloridi (224,000 in two weeks), and a rise while the protochloride of iron was used (178,000 in one week). The increase in the globular richness after discontinuing the iron was marked (nearly 200,000 in one week). The white corpuscles remained about the same throughout. In the second there was no increase while iron was taken; there was a decrease during the administration of tinct. ferri chloridi, and also of the protochloride of iron (340,000 in two weeks). There was no marked increase after the cessation of the iron.

The only conclusion from these two cases is that no increase in the globular richness can be attributed to the use of iron. The variations which occurred were not constant in both cases, and were not greater than the variations from week to week, which we have observed to occur physiologically.

It cannot, therefore, be inferred that the drug had any effect upon the number of the corpuscles; it is certain that there was no marked effect.

Iron was also given to unhealthy subjects and the blood examined.

The conclusion to be drawn from these observations was that in health iron causes no increase in the number of the red corpuscles; but in the pathological state called anæmia there is an increase in the number of the red corpuscles under its use.

In regard to cod-liver oil the following are the conclusions: In the healthy subject cod-liver oil caused an increase in the number of the red corpuscles and a slight increase in the white. In certain pathological conditions this seems to be also the case if the medicine is well borne. If, however, the morbid process is active, and the appetite is disturbed, the medicine does not appear to check the consequent anæmia.

The experiments with Fowler's solution lead to these conclusions: Liquor potassæ arsenitis given in health caused a progressive decrease in the number of the red and white corpuscles, that of the latter being most marked. In simple anæmia, on the contrary, there seems to be an increase at first of both the red and white corpuscles. After a certain point there is a steady diminution of both, however. In the case of leucocythemia there was a decrease in both the red and white corpuscles, the decrease of the latter being very marked.

The Use of Digitalis and Strychnia in Diseases in which Death takes place by Asthenia.

Dr. S. G. ARMOR gives, in the February number of the "Proceedings" of the Medical Society of the County of Kings, a case in illustration of the above, as follows:—

The relation of local to constitutional states has long been a subject of fruitful speculation to the pathologist. To the therapeutist these relations are of equal interest, and may be studied, perhaps, with even greater profit. I submit the following case as a brief contribution bearing upon this point.

Miss J., a maiden lady, aged about 35 years, was attacked on the 14th of December with what seemed to be intestinal obstruction. She came under the care of Dr. George K. Smith, of this city, to whom I am indebted for most of the facts of the case.

At an early period an abdominal enlargement was detected to the left of the median line. It was doughy on feel, tender on firm pressure, and disappeared after full evacuation of the bowels. The inference was that it was a fecal tumor. Following the evacuation of the bowels, the tenderness increased rather than diminished. It gradually extended, the bowels became tympanitic, pain was increased by deep inspiration, by coughing, by all bodily movements, and there was more or less elevation of temperature. The symptoms, in brief, were those of peritoneal inflammation, and the patient was at once put on opium in full and repeated doses, and the bowels kept quiet. The diet was, at first, mainly milk and lime-water.

December 21st, Dr. C. H. Giberson was called in consultation. Symptoms as above described. Temperature, 102°; pulse, 112. Opium treatment continued and quinine added.

December 25th, the twelfth day after the attack, I first saw the case in consultation with Dr. Smith. I found temperature 103½°, pulse, 125, with very low blood pressure; mind clear, local tenderness measurably gone, tongue moist and clean, stomach retaining nourishment well. But notwithstanding the liberal alimentation, in addition to the quinine, opium and stimulants which the patient was taking, the circulation was evidently failing.

In consultation we agreed to continue the treatment, giving the morphine hypodermically in smaller doses, and at regular and shorter intervals, for its sustaining action on the nervous system. We added, also, to the brandy, aromatic spirits of ammonia; and agreed, in addition, to give her tablespoonful doses of the infusion of digitalis every two or three hours.

On the 27th (about twenty-four hours after commencing the digitalis, and apparently the result of it), the temperature fell to 102°, and the pulse to 100.

I saw her again on the 28th, at which time the pulse was 80, and the temperature 101; capillary circulation good, tongue moist; but, for the first time, patient inclines to reject both nourishment and medicine. Regarding the stomach as of vital importance in the critical condition of the patient, we decided to withhold all medicine, continuing only the stimulants, nourishment, and morphine hypodermically administered. At no time did the patient exhibit any symptoms of opium poisoning.

On the 29th, stomach better, patient retains food and stimulants well; pulse, 95; temperature, 101½°

On the morning of January 1st I was hastily summoned to see her again, and learned that during the after part of the night the temperature suddenly rose, with-

out any apparent cause, to 103½°, and her pulse, when I saw her at nine o'clock, was 156, "thready" and uncertain. There was also general "atonic congestion" of the capillaries; the face presented a dusky hue, the skin was bathed in cold, clammy sweat; respiration was superficial and feeble; the eye dull, listless, partly closed and fixed; the mind aroused to consciousness with difficulty, and the reflex function of the spinal so greatly depressed that liquids were scarcely recognized when placed in the mouth. The patient had, in brief, the physiognomy of approaching death.

With this condition of things we administered, as a *dernier ressort*, the forty-eighth of a grain of strychnia, according to the following formula:—

℞.	Strychniæ sulphat...	grs. ij.	
	Aquæ destil. (warm),	℥j.	M.

Five minims contain one forty-eighth of a grain. This dose was repeated every two hours hypodermically during the day and following night, continuing stimulants, milk and beef-juice as the patient could be induced to swallow, supplementing deficiency of stimulants by the mouth by occasional hypodermic injections of brandy. Stimulating frictions were also applied externally, and everything was done to rouse the flagging condition of the nervous system.

Very remarkable improvement almost immediately followed. The dusky hue of the face disappeared, the eye became brighter, the mind clearer and more cognizant of surrounding objects, deglutition less difficult, the perspiration warmer, and the temperature once more came down to 102°, and the pulse from 156 to 120.

This condition of things did not last many days, however, until another class of symptoms, more alarming to the friends than the first, manifested themselves—namely, delirium, with greatly increased sensibility of the surface and of the organs of special sense. The reflex function of the spinal cord became so exalted, that the slightest peripheral irritation produced marked disturbance of the system. Hypodermic injections had to be abandoned for a time. Sleep, however, of several hours, which the patient had not had for some days, caused the delirium to subside, and produced general quietude of the nervous system.

January 3d. Patient was seen by Dr. Hesse, who advised the gradual lessening of the dose of morphine, and that muriate of quinine be administered hypodermically.

January 14th. I learn from Dr. Smith that the patient continues to improve, and that the probabilities are she will make good recovery.

This case has been one of peculiar interest to me, for it involves questions of vast importance in practical medicine. The two points to which I desire to specially attract attention in this case are:—

First. The great necessity of sustaining the heart and general nervous system in a large class of affections which terminate in death by asthenia.

Second. The manifest action of digitalis and strychnia in meeting these indications in the case reported.

The improvement that followed was so rapid and unmistakable, that there could be no doubt on this point. And their action in this case was such as I have frequently observed in similar cases.

In many cases of local inflammatory diseases (not dangerously involving vital organs) the patient often dies, I doubt not, from failure of heart action, before the local disease can run through its natural history. In all such cases time becomes an important element of cure, and the way to get such time is to guard well the "dead point of danger"—a weak and failing heart.

Belladonna as a Remedy for Collapse.

Dr. REINHARD WEBER gives some cases in the Philadelphia *Medical Times*, February 2, 1878, illustrating what he considers a new therapeutical application of belladonna. The following two are quoted:—

Mrs. H., aged 41 years, had been attended by another physician for five days, suffering from gastro-enteritis. I found her in a high state of collapse, as will be seen from the following symptoms: almost constant hiccough for twenty-four hours, frequent vomiting of bloody matter resembling black vomit, and frequent diarrhœa, cold and cyanotic condition of her extremities, and great tympanitis, with tenderness of the abdomen, pulse quite small and very frequent, lungs and heart apparently without organic disease. As alcoholic stimulants had been ordered already by her first medical attendant, and without apparent result, I concluded to try belladonna. I prescribed—

℞	Ext. belladonnæ,	gr. j.	
	Tr opii,	gtt. xx.	
	Potass. chlorat.,	ʒss.	
	Aquæ menthæ, pip.	f. ʒiij.	M.

To be used all within twenty-four hours. No other medicine, except an injection of starch water, with twenty drops of laudanum, for the diarrhœa. The next day I found this patient much better; the hiccough had ceased, the circulation in the extremities appeared much better, and the vomiting was less frequent, and was green instead of bloody. On the fourth day of my attendance, natural warmth of all the extremities, pulse strong—from 90 to 100 beats per minute—vomiting and diarrhœa had ceased, and the tympanitis and tenderness of the abdomen were greatly lessened. Three days later, the gastro-enteritis apparently over; patient complains of hunger, and is quite cheerful, but appears still very weak. Up to now the same treatment had been persevered with; the dose only had been reduced one-half after the extremities had resumed their natural warmth. After this Mrs. H. improved steadily on a quinine and muriatic acid tonic and a good diet, but she was not strong enough to sit up until two weeks later.

Anna S., aged 6½ years; was in the fourth week of a rather severe typhoid fever. Her disease had been marked so far by high degrees of temperature, following chills in the forenoon, notwithstanding the use of quinine. Besides, she had general bronchitis, and she complained a great deal of an exquisite tenderness between the umbilicus and processus ensiformis. In the middle of the fourth week I was suddenly sent for again in the evening, and found her in a state of severe collapse; almost ice-coldness of her extremities, with blueness of the skin and of the lips, respiration difficult and 42 per minute; pulse very frequent and hardly perceptible; no signs of pneumonia, but dry and moist rhonchi all over the chest. No other change was made in her treatment but the addition of one-quarter of a grain of ext. belladonnæ to two ounces of a quinia solution which she had been taking before. This quantity I directed to be used all during the next twelve hours; besides this, milk punch in the doses in which it had been given already for several weeks. The next morning I was agreeably surprised by the condition of my patient. Her limbs were of natural temperature and color; her pulse strong and 100 per minute; her respirations but 22 per minute, and all the signs of bronchial obstruction had completely disappeared. The child was cheerful, and played with her doll. From then her recovery progressed without any interruption.

On Cinchonia and Cinchonidia.

Dr. W. C. CHAPMAN says, in a paper in the Toledo *Medical and Surgical Journal*, December, 1877—

The first salt proposed as a substitute for sulphate of quinia was the sulphate of cinchonia; this was introduced at a time when the difference in cost of the preparations was very little, and the attempt to introduce it was a comparative failure. Physicians had found what they wanted in the quinia, and were, therefore, satisfied, and allowed the other salt to fall into disuse. Unquestionably the sulphate of cinchonia is an antiperiodic, and although not so efficient as the quinia, may be satisfactorily employed, if prescribed in larger doses.

As has been mentioned, cinchonidia is isomeric with cinchonia, and it is a question yet undetermined, as to whether its therapeutical action is not also similar. The experience of many practitioners goes to show that they are very nearly allied in this respect.

I am satisfied that to receive the same benefit, larger doses of cinchonidia must be given than of quinia, and if such a course is pursued equally beneficial results will be obtained in the employment of either salt. This fact does not detract from its usefulness; although the dose must be larger, the difference is so trifling that it scarcely merits attention. Of course, the principal question which should be considered by the physician is as to whether a curative result follows its administration, and whether there are any advantages other than the mere fact of economy observed from it therapeutically. Briefly summing up the matter from my own experience, I present the following as the result of my observations:—

1st. Cinchonidia possesses all the antiperiodic properties of quinia.

2d. The unpleasant cerebral effects of quinia, as dizziness and deafness, do not follow its administration.

3d. In place of the above, we have, after the use of cinchonidia, a sense of fullness in the head, expressed by some as though a band were fastened tightly across the forehead. In many cases a slight nausea is observed.

4th. To derive the same degree of benefit, at least ten per cent. more cinchonidia must be administered than of quinia.

5th. As regards cost of the two preparations, a matter of great importance to the poorer classes, where the remedy is largely demanded, cinchonidia has the advantage of cheapness. As the demand increases, of course, the price will approximate more nearly that of the more expensive salt, but will never advance so as to compare unfavorably in that respect.

Therapeutic Uses of Camphor.

A writer in the *Medical Press and Circular*, January, 16th, 1878, says: Practically speaking, camphor is seldom prescribed in such doses as could ensure its physiological action on the system. Camphor mixture is about the only preparation that figures in the day-book of the general practitioner, and then merely as a vehicle for more potent medicines. That the therapeutic value of this drug should be so ignored, has often been to us a matter of surprise. Its virtues were duly recognized by the ancients, and it was often a favorite remedy with some of those older physicians who practiced in an age when much more attention was given to the treatment of disease than is given now. Its well known physiological action should alone claim for it the attention of the practical physician. In small doses it is a

diffusible stimulant of no mean order; it increases the action of the heart, and accelerates the circulation, excites a feeling of warmth all over the system, and promotes diaphoresis. It also exhilarates the spirits, and by one writer it has been described as causing a sensation of lightness, "the patient feeling as if she could fly." This feeling of exultation is very marked in some cases, and in an article in the *Quarterly Review*, September, 1851, on the Burning of Widows, it is stated that "the messengers found the Brahmin plying her with camphor, so that he was wholly unable to overcome the exultation which she exhibited." In larger doses camphor allays pain and spasm, promotes sleep, acting indeed as a narcotic; while in doses of 20 or 30 grains such poisonous symptoms as giddiness, dimness of vision, delirium, uncontrollable laughter, and even convulsions or paralysis, testify to the powerful influence which this drug may have on the system. It is, however, in virtue of its extraordinary sedative influence on the genito-urinary system, and especially the generative organs of the female sex—of its anaphrodisiac properties—that camphor is most useful as a therapeutic agent. "Camphor," says Dr. Physick, "was made for women, with whom it always agrees." "It seems," another writer remarks, "to correct the toxic influence which the reproductive system has on the brain of some women." Its anaphrodisiac properties are shown by its beneficial action in the treatment of priapism and nymphomania; and it is said to abate the sexual stimulus by acting on the cerebro-spinal nerves of the external organs of generation, and not the testicle, or ovary. Nevertheless, according to the testimony of Raspail, habitual large doses do not prevent conception nor induce impotence. A French physician, Dumas, who practiced in the beginning of this century, is said to have given as much as 100 grs. in the course of a day. Raspail gave from 5 to 10 grs. in a wineglass of water, with or without a few drops of ether. Dr. Tilt, one of the physicians who, in this country, have duly appreciated the value of camphor, gives it in the same manner, or prescribes Sir J. Murray's fluid camphor. Nor are the peculiar physiological effects of this drug the only reason why the practitioner of the present day should use it more frequently than he is in the habit of doing, inasmuch as there are several diseases in the treatment of which it has been found most efficacious by physicians in whose testimony we may place the greatest confidence. Among those few English authors who have had most experience of the action and uses of camphor, we may mention Drs. Copland, Dewees, and Tilt. The first mentioned physician highly recommends it in typhus and typhoid fevers, some forms of insanity, asthma, puerperal convulsions, gout, and dissection wounds. Where febrile, pestilential and exanthematic affections assume an adynamic form, he prescribes it in large doses in combination with tonics, stimulants, and antiseptics. In asthma, he remarks, camphor is one of the most generally beneficial of any of the class of narcotics, or antispasmodics, and we have at the present time an asthmatic patient under our care, in whom the administration of camphor affords the most decided relief. It is, however, in certain affections of the genito-urinary organs, that the value of this drug is most marked. Dr. Tilt says it is a valuable remedy in the treatment of several affections incidental to the change of life. In dysmenorrhœa, Dr. Dewees regarded it as the most certain and uniform palliative. In nymphomania, it has a remarkably sedative influence upon the genital organs. In the treatment of this, and similar disorders, in which Alibert, Esquirol, Copland, and Tilt, speak in high terms of its therapeutic virtues, it may now be advantageously given in combination with bromide of potassium. In cancer of the uterus, Dewees found that liberal doses of camphor afforded relief when opium failed to do so; while in

he treatment of ovarian and uterine irritation, chordee, and some forms of ıysteria, it will be likewise found a very valuable remedy.

On Jaborandi.

At a meeting of the Therapeutical Society of New York, reported in the New York *Medical Journal*, February, 1878, Dr. SQUIBB, in behalf of the Committee on Materia Medica, read an introductory report on jaborandi. This, the doctor stated, s an Indian name, applied to several Brazilian plants, including some species of *piper*. The true drug, however, is from the *pilocarpus pennatifolius*, and consists of he compound leaf and the accessories. The leaflets which possess the full virtues of the drug are of a uniform, dark-green color. Many specimens in the drug market contain a preponderance of brown or yellow dead leaves, which are nearly worthless. As large quantities of these inferior grades are sold, it is a fair inference that much of the fluid extract in the market is made from them, which may account for the unsatisfactory results often obtained from these preparations. Unless a fluid extract of known good quality can be obtained, it is better to employ an infusion, the physician himself selecting the dark-green leaflets, and rejecting those that are yellow or brown.

Five specimens of the drug were exhibited, showing different grades; the wholesale prices ranging from sixteen to fifty cents per pound, and the values for medicinal use bearing about the same proportion.

There is no standard formula for the preparation of the fluid extract—the form in which the drug is most employed—and, therefore, each manufacturer selects his own method. From good material a good fluid extract is easily made by exhausting the powdered drug with a mixture of one-third stronger alcohol and two-thirds water, so that each minim will represent a grain, the extraction being made by repercolation and without heat. (A sample thus made, and called fluid extract of pilocarpus, was exhibited.)

The active principle has been isolated, and is an alkaloid. It is called pilocarpine, or, properly, pilocarpia. It is a viscous or semi-solid, unmanageable substance, slightly soluble in water, and freely soluble in chloroform, ether and alcohol. Its salts with organic acids are uncrystallizable, but with nitric, sulphuric and hydrochloric acids, are crystallizable, and soluble in water in almost any proportion.

The hydrochlorate and the nitrate are in common use. These are sold at the same price by the importers (thirty-five to forty cents a grain), but the hydrochlorate is the more efficient, as the relative amount of acid in the two salts is as thirty-six to fifty-four, the difference being made up by the base, which alone is active.

The salts are well adapted for hypodermic use. A convenient solution for this purpose is one which contains one part in thirty by weight, or about fifteen grains to the fluid ounce. To prevent the formation of microscopic growths in the solution, about half a grain of salicylic acid should be added to each ounce. A convenient formula would be as follows:—

Weigh into a counterbalanced vial, of pilocarpium hydrochlorate, one part; distilled water, twenty-four parts; cold saturated solution of salicylic acid in water, five parts.

On the Principal Alkaloids of Cinchona.

The following observations on the four chief alkaloids of quinia appear in the *Doctor*, December, 1st, 1877.

Quinia and quinidia are isomeric with each other; so are cinchonia and chichonidia. This might lead us to expect quinidia to be the most valuable substitute for quinia, and the few clinical facts accumulated seem to indicate that it is.

The committee appointed by the Madras government, in 1866, reported on 2472 cases treated. Of these, 836 took quinine, 664 quinidine, 569 cinchonine, 403 cinchonidine. The ratio of failures was for the four above-mentioned alkaloids—quinidine, 6; quinine, 7; cinchonidine, 10; cinchonine, 23.

As a good deal of confusion seems to prevail as to the nomenclature of these cinchona alkaloids, although it is not very long since M. Bouchardat endeavored to clear it up, we may as well repeat the distinctions he has laid down in *l'Union Pharm.*, for the present year, No. 69.

Cinchonidia was discovered by Winckler in 1848; its sulphate had been long known and designated as "sulphate of quinidia" by A. Delondre (who, together with O. Henri, discovered in 1833 the true alkaloid quinidia; by F. Boudet and Bouchardat (who noticed its peculiar rotatory power); and by German manufacturers of cinchona alkaloids. Pasteur demonstrated its isomerism with cinchonia and dispelled all uncertainty in regard to it.

The rotatory power of cinchonidia has since then been rigorously determined by Oudemans, and by G. Bouchardat (fils), upon the pure alkaloids, both of whom obtained exactly the same results.

Commercial sulphate of cinchonidia is often mixed with a small quantity of sulphate of quinidia, from which it has not been entirely separated in the course of manufacture.

Sulphate of quinidia is a much scarcer article in trade than the cinchonidia salt. It was extracted by Delondre and O. Henri from the yellowish solution remaining after the separation of quinia and cinchonia from calisaya bark, which latter has, however, long ceased to be the principal source of this alkaloid.

Van Heijningen obtained it from the complex substance known as chinoidine, and gave to it the name of β quinine.

Winckler extracted cinchonidia from a bark which he found to have great resemblance to Huamali bark, as well as from Maracaïbo bark.

The same base exists also, in considerable quantities, in the barks which are gathered to the north of Bogotá, at Valez, Socorro, Pamplona, and Ocania. It is probable that these, or allied species, are identical with some of those now cultivated in Java or India.

According to de Vrij, the best source for the preparation of cinchonidia is the bark of cinchona succiruba, cultivated in British India and Java. This bark is very rich in alkaloids, containing from 5 to 10 per cent., which corresponds to 25 to 50 grammes per pound; and among these cinchonidia is predominant. De Vrij has lately analyzed a red bark, containing as much as 10.27 per cent., of mixed alkaloids, among which 6.47 was cinchonidia.

In addition to this, a New Granada bark must be mentioned here, which is very rich in cinchonidia. Mr. E. Rampon states "that this bark has the same texture as C. cordifolia, but its external surface when stripped presents a rose, or a more or less red tint, very characteristic to a practiced eye. This is the bark which Delondre and Bouchardat have figured and described in their quinology, under one of its forms as 'Rose-colored Carthagena Bark,' and under its other form as 'Red Mutis Bark.' Indeed, the larger pieces resemble those of red cinchona, but its texture and chemical composition is entirely different. This bark, against which much has

been written in Germany, and the chief alkaloid of which was rejected, has later come into great favor. Indeed, cinchonidia is equally as effective as quinia. It has been much used abroad.

Bouchardat has employed cinchonidia as an antipyretic since 1856; and Grisolle has likewise used it under its improper name, "quinidia sulphate."

It must be remembered that in France a good deal of cinchonidia sulphate is sold under the improper name of quinidia sulphate; and there are generally two grades of the latter quoted in price lists: one as "quinidia sulphate I," which is said to be tolerably pure; the other as "quinidia sulphate II," which consists almost entirely of cinchonidia sulphate. In purchasing quinidia sulphate, therefore, it should be carefully examined, and, if it contain more than 3 per cent., of cinchonidia, it should be rejected. This amount of impurity is admissible for the sole reason that a further separation of the two bases so enhances the price of the product as to place it among the dear alkaloids.

The Sulphate of Cinchona as an Antiperiodic.

Dr. LAWRENCE JOHNSON cites a number of cases of intermittent cured by this drug (in the New York *Medical Journal*, February, 1878). He remarks on its use:—

As to the manner of administering the drug, it was generally given in pills of three grains each, from one to three being taken three or four times daily. Thus the patients received from nine to thirty-six grains per day, according to the age and type of the disease. One of the doses was given an hour or two in anticipation of the chill; and, whenever practicable, the patient was directed to lie down at this time, and remain warmly covered until an hour or two after the chill had passed, or should have passed, in case it did not make its appearance.

After detailing a few examples, he proceeds:—

The above are a few of the well-marked cases of intermittents treated upon the plan laid down at the beginning of this report, but they are typical of a large number treated with very gratifying results. Of the large number of cases of various disorders bearing the taint of malaria, and which were subjected to the action of cinchona sulphate, in addition to other treatment appropriate to their various features, nothing will be said, save that it gave entire satisfaction, and far surpassed the anticipations had of it at the commencement of the experiments.

It would seem, then, that the sulphate of cinchona may be relied upon, in a measure, as a substitute for the sulphate of quinine, whenever, from motives of economy, the practitioner desires such a substitute. At the present writing sulphate of cinchona costs little more than one-tenth as much as sulphate of quinine—a difference that is well worth considering in all charitable institutions; in very many of those cases where patients buy their medicine; and especially when physicians, as is too often the case, are obliged to furnish both advice and medicines for little or no compensation.

Therapeutic Value of Cinchona.

In the December, 1877, number of the Richmond and Louisville *Medical Journal*, Dr. C. W. NULL reports a series of cases of intermittent treated by cinchona, concluding as follows:—

Many other cases have reported favorably in regard to aborting the paroxysm. None of the alkaloids seem to have the power of permanently curing intermittent

fever among the class of patients we treat mostly, unless followed daily for about one month with arsenic and strychnia.

While there may be much virtue in this medicine as a convenient therapeutic agent, yet we will make still further trial of it before we venture to estimate its true clinical worth. If it can fully take the place of the bitter and disagreeable salts of the alkaloids, it will be certainly a most valuable addition to our materia medica. It being perfectly tasteless, it can be taken by children and persons of delicate stomach with as much ease as so much wheat flour. It is insoluble in water or any of the alkaline secretions, but very soluble in acids; and if any acid be present in the mouth, or if the saliva be acid in its reaction, which seldom occurs, it will dissolve a small quantity of the alkaloid, and the bitterness will be immediately developed. In order to avoid any bitter taste in the mouth, it is directed to be rubbed up with a small quantity of an alkali—carbonate soda generally used ("twelve parts of the powder, sixty parts of sugar of milk, and one part of bicarbonate soda, which mixes readily with milk"); this will neutralize any acid which may be present, and prevent the development of taste. After it is swallowed, it is followed with a drink of water to wash down that which adheres to the parts.

When the insoluble alkaloid enters the stomach it meets the free acid always present there, and is dissolved by it—rendered into such a condition that it is capable of being taken up and absorbed into the circulation by the venous radicles of the stomach. But the free acid of the gastric juice being a weak acid, and secreted in comparatively small quantities, it is reasonable to suppose that if large doses are taken, the greater amount of each will pass through the stomach undissolved, and in the intestinal canal will be rendered more insoluble by the alkalies of the bile, pancreatic secretion and intestinal juices, all of which secretions are decidedly alkaline. Hence it will pass off as an inert substance with the fæces, unappropriated by the system. To insure its absorption in the stomach, acidulous solutions are freely administered in the course of half an hour, to act as an auxiliary to the acid of the stomach in dissolving the alkaloid. Any acid will answer the purpose, so that it has the power of dissolving cinchona.

On the Therapeutic Uses of Sulphate of Copper.

In the *Commentario Clinico di Pisa*, for September, 1877, quoted by the London *Medical Record*, Drs. G. Levi and D. Barduzzi publish experimental and clinical researches on some little-known therapeutic applications of sulphate of copper. In both man and animals the results which they have obtained are so uniform as to merit serious consideration.

The animals on which experiments were made were horses, asses and dogs: the dose, at first, was 15 centigrammes (2¼ grains), increased to one or two grammes (15 or 30 grains) on the second day, according to the tolerance of the subject; the result was always an increase of strength and flesh. At the necropsies, traces of the metal were found in the blood and in the liver, especially the latter. They also gave copper, on a large scale, to patients in the Pisa Hospital; especially those affected with skin diseases, and those in whom the processes of assimilation were impaired. Individuals affected with erythema, ecthyma, herpes zoster, eczema, scrofula, pellagra and tuberculosis, were treated with sulphate of copper, in doses of 3 to 7 centigrammes (about half a grain to a grain) daily, the dose being gradually increased, in order more readily to ensure tolerance of the remedy. The results corresponded with those obtained by experiments on animals. The patients bore the

medicine well; the eruptions were favorably modified; the nutrition was improved; the strength and weight increased; the mucous membranes assumed an improved color; and in some cases menstruation was re-established. The authors observe that it clearly follows, from these facts, that sulphate of copper, administered in a proper dose, is not only tolerated by the stomach and intestines, but gives a great impulse to the activity of the nutritive processes. They arrive at the following conclusions:—

1. Sulphate of copper, given to animals in doses gradually increased from three-fourths of a grain to 15 grains, is easily borne; and, in general, this dose, far from producing disturbances, improves the state of nutrition.

2. Sulphate of copper powerfully modifies the nutritive functions, by virtue of the greater activity which it induces in the internal processes of tissue change; and hence it is indicated in all states of the organism in which there is deficiency or atony of nutrition and impoverishment of the blood. In the treatment of such maladies, as well as of the functional disturbances which arise from them, notable benefit may be derived from its use.

3. The best method of administering sulphate of copper is in pill, at the commencement of or during meals.

On the Diuretic Properties of the Hydrobromate and Citrate of Caffeine.

At the meeting of the Paris Société de Thérapeutique, on November 27th, Professor GUBLER spoke on the diuretic properties of hydrobromate of caffeine (*Bulletin Général de Thérapeutique*, December 15th). After having cited some test cases, he quoted one of a man suffering from an organic disease of the heart, whose liver was on the way to undergo the cirrhotic degeneration which precedes what is called nutmeg liver. As a consequence of this affection, œdema of the lower limbs and abdomen was diagnosed. Digitalis had very little effect. M. Gubler then gave a hypodermic injection of fifty centigrammes of hydrobromate of caffeine. Diuresis set in after the second day, and gradually reached four litres and a half. When the injections were discontinued, the urine diminished gradually to a smaller quantity than the normal amount; the œdema, which had almost completely disappeared during the time of the diuresis, again appeared. Making a fresh injection, M. Gubler obtained the same result. It is important to note that with caffeine diuresis is abundant and almost instantaneous, while with digitalis the increase of urine only comes on on the second or third day. The caffeine, also, either citrate or hydrobromate, may be introduced under the skin without exercising any irritant action on the subcutaneous cellular tissue. M. Féréol mentioned the case of a patient who, suffering from a heart disease, had reached the last stage of cachexia. M. Gubler, who was called in consultation, prescribed an injection of morphia, and a draught with 30 centigrammes of caffeine. The next week the urine amounted to one litre and a half; but the improvement did not last long, on account of the concomitant lesions of the kidneys. Death occurred two days afterward. M. Gubler remarked, in reference to this case, that the diuresis was always seen to diminish gradually, on account of the habituation of the organism to the physiological action of the drug. Account must also be taken of the reserve of liquid to be eliminated. Thus, for instance, digitalis has been given in cases in which there was no œdema nor infiltration (pneumonia); diuresis was not then observed. In a word, the diuretic effects are in proportion to the quantity of liquid accumulated.

On the Therapeutic Use of Iodoform.

Dr. BERKELEY HILL, F. R. C. S., Professor of Clinical Surgery in University College, writes to the *British Medical Journal*, January 26th, 1878 :—

Locally, iodoform, as a dry powder, brushed lightly over the surface with a moistened camel-hair pencil, has been, for three years, my almost invariable treatment of venereal sores, especially the local chancre. During the last few months I have often substituted for the dry powder an ethereal solution (one part of iodoform in six or eight of ether). The sore is touched or dabbed with a pencil dipped in the ethereal solution, according to its size and depth, lightly or copiously. The ether quickly evaporates, leaving a thin pellicle of iodoform, that as effectually stays the spread and produces healing of chancres as does the more copiously applied dry powder. Thus, the surface is covered more exactly, and the disagreeable smell of the iodoform is too faint to attract attention. The sore is well washed with water and dried before the iodoform is applied, and the surface is, lastly, protected by a bit of dry lint. When the secretion is abundant, the dressing must be renewed twice daily, but in three or four days the amount of discharge becomes so scant that one dressing *per diem* suffices.

In this way, venereal sores heal quickly. Pain subsides at once; the sore is well in a week or ten days, and the chances of consecutive inoculation or bubo are greatly lessened. In a very few cases, the application of iodoform gives momentary smarting, which is very bearable; even the ethereal solution does not hurt, and usually, the patient declares the application to be quite painless. I avoid using iodoform on inflamed sores, or on simple granulating wounds; but indolent non-specific ulcers are rapidly improved by iodoform locally applied.

Lately, I have given iodoform internally with great benefit. It acts more rapidly than potassic or other iodides, and, judging from experiments thus far, is as readily borne as are those salts. I have given it in one-and-a-half grain doses as a pill, with extract of gentian. Three pills are given each day, increasing gradually till eight or ten pills are taken in twenty-four hours.

I have used it with excellent effect in cases of obstinate syphilitic ulceration of the tongue, where the dorsum is covered with rugged, thickened epithelium, which is constantly splitting into deep fissures, and thus causing continual severe pain to the patient. This affection is often quite insensible to mercury, alkaline iodides, or arsenic—the remedies usually beneficial. In three of these obstinate cases, where I had been treating the patients at intervals for years with the remedies just mentioned, with little lasting benefit, iodoform pills have acted like a charm. Pain, immediately lessened, in two or three days ceased wholly; and the fissures healed rapidly, while the tongue soon shrank to its natural size. How long the relief will endure, time alone will show; but any interval of only apparent cure of this very painful affection is a great blessing to the sufferer, and time is given for the exhibition of mercury if required. In December last, I had under my care, in University College Hospital, a patient with ulcerated and protruding gumma of the left testis, non-ulcerating gumma of the right testis, and ulcerating gummata of the skin over the upper end of the right tibia, with other syphilitic affections. Iodoform was administered in pills, and water dressing applied to the ulcers. Rapid healing and subsidence of the swellings took place, notwithstanding that, when the dose of eight pills *per diem* had been reached and administered for three days, an outbreak of pyrexia, coryza and iodic acne rendered it necessary to drop the drug completely for a short time. In three weeks the patient left the hospital, almost healed, and continued his treatment

as an out-patient. Again, a lady who has, during the last two years, consulted me occasionally for intensely agonizing pain in the head, caused by syphilitic pericranial and cranial disease, for which a customary dose was thirty grains of sodium iodide, three times daily, was at once relieved of pain by the iodoform pill taken three times daily, though, on the third day, nausea became too urgent to allow the iodoform to be continued in that quantity; it was at first diminished till pain ceased, and then discontinued altogether. This small experience has satisfied me that in iodoform we have a very useful addition to our store of weapons for fighting syphilis. Further observation will enable us to apply it more exactly and when most suitable.

Iodoform as a Local Remedy in Syphilitic, Scrofulous and Indolent Ulcers, and Specific Bubo.

Dr. J. E. CHANCELLOR, of the University of Virginia, gives a paper on this subject, in the *Transactions Virginia State Medical Society*, 1877, from which we extract the following:—

The success that has attended the use of iodoform in my hands, as a local application in chronic syphilitic and scrofulous ulcers, prompts me to present a transcript of some of the cases treated, to this meeting, with the hope that it may elicit the views of others of larger experience in the use of a remedy, to me comparatively new in the management of this class of disease.

CASE 1.—In the spring of 1872, I was called to visit Mrs. B., a lady of good social position, aged 30 years; mother of three children; lymphatic temperament; anæmic appearance. The youngest child was two years old; the second child was five years old and delicate. I found the mother suffering with what she called ulcerated sore throat, with painful deglutition. An examination revealed some inflammation of the fauces, palatine arches, and a swollen condition of the uvula, behind which, in the pharyngeal arch, was a foul, ragged ulcer, the size of a nickel five-cent piece.

History.—This attack seemed to be but the recurrence of previous trouble of a similar character, which was treated by another practitioner. The development of this case is not less singular than interesting. The second child, a girl, at this date five years old, was at her birth a healthy, vigorous child, and continued so up to the age of eight or ten months. About this time it was greatly afflicted with what was considered ulcerated sore throat, involving the fauces. It was allowed to continue at the mother's breast. About this time the mother's nipples became very sore; her general health also seemed to suffer.

In the investigation of the train of symptoms, and the causes giving rise thereto, it was discovered that the colored nurse was in the habit of the reprehensible practice of chewing food and putting it in the infant's mouth. It was revealed, alas! too late, that this nurse was affected with secondary syphilis, and was dismissed—not, however, before she had infected the infant, and through the infant the mother, as the ragged, sharply-cut ulcer in the pharyngeal arch proved conclusively, resisting, as it did, the persistent use of caustic applications and gargles.

Having seen mentioned the use of iodoform in this class of ulcers, the patient was at once put upon its use, locally applied with a camel's hair brush, twice a day, having first cleansed the throat with a chlorinated wash. Iodide of potassium and bichloride of mercury were used internally. The rapid improvement in the condition of the ulcer was, doubtless, due to the local application of the iodoform, as it healed in seven or eight days, and the patient regarded herself well.

CASE 2.—E. N., mulatto, aged 35; of sanguine temperament, good physique, the mother of four living children, the youngest of which was an infant six months old. She applied for treatment during April, 1877. The effort of talking and deglutition were both attended with pain.

History.—Had been married, but was deserted by her husband, who, she said, had brought about her present trouble. Some of her children had had a breaking out: and she had also had sores about the genitals. On examination, I found the palatine arches relaxed and œdematous; the soft palate elongated and swollen, with a deep, ragged ulcer at its base, which had nearly severed it from its attachment. The case seemed hopeless, so far as saving the uvula was regarded, and this opinion was expressed to the patient, who said, resignedly, "I know I have neglected myself." The history of the case leaves no doubt as to its specific character.

With little hope of saving the uvula (for it hung by a mere fibre), the treatment was begun first by the local application of liquor ferri persulphas (dilut.) carefully applied by spray. This was followed by the free application of iodoform to the ulcerated surface, with the caution not to swallow any fluid for half an hour after each application. This treatment was continued for a week or ten days, with an occasional application of the liquor ferri persulphas diluted with glycerin; at the same time the patient was put on the use of potassium iodide and corrosive sublimate, ten grains of the former to one-sixteenth of a grain of the latter, three times a day. It should be stated that she was also put on the liberal use of beef tea and generous soup. No solid food could be taken.

In this case the improvement was most rapid, and could be seen from day to day. The ulcer granulated kindly, and the soft palate was saved. In three weeks the ulcer was entirely healed, and the throat in a normal condition. The constitutional treatment was continued. The patient regards herself as cured. The rapid improvement of the local condition was doubtless due to the use of the iodoform, as sufficient time had not elapsed for the alterative influence of potassium iodide and corrosive sublimate.

CASE 3.—Markoe A., a sprightly lad, aged 9 years; the fourth son of healthy parents, was brought to my office for examination and treatment last March. The neck was bound about with flannel; the breathing was harsh and labored; voice husky; face pallid. He had an anæmic appearance, and a constant disposition to hawk and spit, to clear the throat of the accumulated phlegm.

History.—Some six months ago he contracted cold, with severe sore throat. During the fall and winter his symptoms were prescribed for and treated by several competent practitioners, but his great timidity and aversion to taking remedies disappointed improvement. Examination of the throat and fauces revealed the absence of the soft palate, with partial destruction of the palatine arches, and a thickened, ragged and ulcerated condition of the upper part of the pharynx, which was covered with a buffy coat of exudation, which had some odor. The upper part of the larynx was also involved, and the epiglottis was threatened. The timidity of the patient prevented any examination of the glottis and vocal chords, which, from the symptoms present, were doubtless involved. The gravity of the case was explained to the mother, who was present at the examination, and the importance of prompt and persevering trial was insisted upon, and at once begun.

By cleansing the throat with a dilute solution of persulphate of iron and glycerin, a solution of chlorate of potash and glycerin, to which was added a few drops of carbolic acid, was directed to be used as a gargle, *ad libitum*. The application of

persulphate of iron was made daily, in my office. After the third application of this, it was followed by the free application of the dry powder of iodoform, which now became the principal local remedy, the ferric solution being occasionally used as condition indicated. At the same time the patient was put upon constitutional treatment, the following formula being first used:—

R.	Potassium iodide,	ʒiij.	
	Corrosive sublimate,	gr.iss.	
	Comp. syr. stillingia,	℥iv.	M.

Sig.—A teaspoonful after each regular meal.

Due attention was given to the condition of the bowels, and a generous diet was urged. The persevering and regular observance of the line of treatment above indicated, for six weeks, brought about a most satisfactory change in the condition of the throat. The ulcerated surfaces were nearly obliterated, and the pharyngeal arch lost its ragged appearance; the voice became much clearer, the vitiated secretions were arrested, and breathing was much improved.

Action of the Alkaloids of Opium.

In a late study of this subject, Dr. Isaac Ott reaches the following conclusions:—

1. Cryptopia is narcotic; excites, and then depresses reflex action by an effect on the spinal cord, reduces power of motor nerves, abolishes sensation by an action on the spinal sensory ganglia, and lowers the heart beat by an action on its muscular structure.

2. Thebaine is a spinal convulsivant; has no action on motor or sensory nerves, or striated muscle. It reduces the heart beat by an action on that organ, and increases blood pressure by stimulating the cerebral vaso-motor centre.

3. Codeia is a narcotic and spinal convulsivant; produces a veratroid contraction of striated muscle, and depresses the heart beat by an action on the cardiac muscle.

4. Chlorocodide is a tetanic agent.

5. Apocodeia produces vomiting, coma and death.

6. Narceine is soporific to cold-blooded animals, but not to man, and is a spinal convulsivant. It does not destroy the motor nerves, as they act on thrusting a probe down the spine. It produces veratroid contraction of the muscle, and reduces the heart beat by stimulation of the peripheral end of the pneumogastric.

7. Papaverine is narcotic and convulsivant; the convulsions being partly spinal and partly peripheral, the latter, it is highly probable, from an action on the muscle. It diminishes the heart's contractions by peripheral action on the cardio-inhibitory apparatus. It also causes veratroid contraction of the muscle.

8. Narcotine is non-narcotic and a spinal convulsivant; produces veratroid contraction of striated muscle, and is a very active agent to decrease the beats of the heart by an action on cardiac muscle.

9. Cotarnine is soporific, and paralyzes, like curare, the motor nerves.

10. Hydrocotarnine is narcotic and convulsivant.

11. Hydrochlorate of cotarnamic acid is a convulsivant, and paralyzes the pneumogastric.

12. Laudanosine and laudanine are tetanic agents.

13. Morphia is a narcotic and spinal convulsivant. It produces veratroid contraction of muscle, and reduces the heart beat.

14. Oxymorphia has an action like morphia, only weaker.

15. Apomorphia is an emetic, excites and reduces spinal reflex excitability, and diminishes the number of cardiac contractions.

16. Meconine is narcotic to cold-blooded animals, but not in doses of two grains by the stomach, in man. It causes hyperæsthesia and paralysis of voluntary motion, with general relaxation. It also produces a veratroid contraction.

As has been stated, the alkaloids of opium have all a dominant action on the nervous system, causing first increased exaggerated functions, and if the dose is large enough, a paralysis of them. In cold-blooded animals this action is mainly spinal, because all their functions are mainly spinal. But as the spinal functions are subordinated to the action of the cerebral ganglia in the animal kingdom, so there is not so much spinal action, and more excitation and depression of the cerebral actions. Morphia, in cold-blooded animals, brings out the spinal action, tetanus, while in man it brings out the cerebral actions, which usually mask the spinal action, although occasionally there is seen only a spinal action and an excitation of the cerebral action. In such cases the fault is in the nervous constitution of the individual, the spinal functions not being under the control of the cerebral. Other excitants cause in children general convulsions, which in the adult are without effect, because the predominance of the spinal functions are subordinated more, in the adult, to the cerebral ganglia than in childhood. As to the reasons why one element of opium is active in a lower animal and useless in man, the march of experimental science will decide.

I have appended here a table, showing approximately the soporific, convulsivant and toxic relations of the elements of opium. They are arranged in the order of their strength. Some have been studied so little that their true place in the series cannot at present be definitely laid down.

Narcotic Effect.		Convulsivant Effect.	Toxic Effect.	
MAN.	ANIMALS.	ANIMALS.	MAN.	ANIMALS.
Morphia.	Morphia.	Thebaine.	Morphia.	Thebaine.
Codeia.	Codeia.	Laudanine.	Codeia.	Laudanine.
Cryptopia.	Cryptopia.	Laudanosine.	Cryptopia.	Laudanosine.
Papaverine.	Narceine.	Hydrocotarnine.	Thebaine.	Hydrocotarnine.
	Meconine.	Papaverine.	Papaverine.	Morphia.
		Narcotine.	Narceine.	
		Codeine.	Narcotine.	
		Morphine.		

The Combination of Atropia and Morphia.

Dr. J. N. Miller gives these two illustrative cases in the *British Medical Journal*, November 17th, 1877:—

A lady, suffering from cancer of the womb, had had as much as two grains and two-fifths of morphia injected hypodermically at once, to relieve the paroxysms of pain. This dose did not produce sleep for an hour or more, and then only of a dozing character and easily interrupted. As the disease had not advanced far, I was anxious to husband the morphia as much as possible. Believing that belladonna or atropia increases the effect of opium, I gave one-sixtieth of a grain of atropia with the morphia, with such good results that, after a few trials, I found that four-fifths of a grain of morphia, when combined with one-fortieth of a grain of atropia, was enough to relieve the pain as effectually as the two grains and two-fifths of morphia had done alone, and produced sound sleep at once.

On one occasion, a dose of one-thirtieth a grain of atropia and four-fifths of a grain of morphia had failed to relieve an unusually severe attack of pain. After four hours, the patient's son, who had previously given the injection under my direction, on his own responsibility repeated the dose, not unnaturally supposing that, as two grains and two-fifths of morphia had been given at once several times before, four-fifths of a grain might be repeated after an interval of four hours. On visiting her soon afterward, I was cautioned not to disturb her, as she had gone off into a sweet sleep; but, being anxious to see the effects of the second dose, I examined her a little more attentively than usual, and found that the supposed sleep was really profound coma. The pupils, moderately dilated, were insensible to light. The respirations were shallow, and continually interrupted by an alarming pause. The eyelids, when opened, remained so. No shaking or pinching produced any effect. Although vomiting was a prominent symptom with her, neither a finger nor a feather tickling the fauces produced any movement. The sole reflex action that I could excite was a slight quiver of the right eyelid when cold water was thrown on the face and chest, but the respiration was not altered by it. Ammonia to the nostrils also failed to cause movement. The pulse was soft, regular, and 116. Frequent cold affusion to the face and chest, with mustard poultices to the calves of the legs and nape of the neck, were applied at intervals, for an hour, before the patient could be roused. As far as this one case goes, nothing can be more conclusive, I think, than that atropia intensifies, rather than counteracts, the sedative effects of morphia.

Researches on the Action of Geissospermum.

The London *Medical Record*, December 15th, states that at a meeting of the Parisian Academy of Medicine, MM. Bochefontaine and C. de Freitas presented a note on the physiological action of Pas Pereira (Giessospermum læve of Baillon.) Geissospermine is a toxic principle which does not seem to exercise any local irritant action, so as to interfere with its introduction by the hypodermic method. Two milligramme (.03 grain) doses injected under the skin killed a frog; half a milligramme (.0075 grain) is enough to produce paralysis; a dose of one centigramme (·015 grain) given hypodermically killed a full-grown guinea-pig weighing 668 grammes (nearly one and a half pounds); 14 centigrammes (two and a quarter grains) completely paralyzed all the spontaneous movements in a small dog. Clinical observation has shown slowness of the pulsations of the heart and diminution of arterial pressure under the influence of this agent. The respiratory movements become less frequent. The voluntary movements are the first to cease. When the animals are motionless, and seem absolutely insensible—that is to say, when they do not show any manifestation of pain under the influence of various external stimulants—the reflex movements are not abolished. Thus geissospermine appears to act on the brain. The reflex movements are afterward progressively abolished. Geissospermine certainly acts on the spinal cord, and on the medulla oblongata. In fact, in frogs, from which the brain had been removed, and in which the spinal cord still retained its reflex power, it was found that this substance suppressed the reflex movements, just as in animals of the same kind still having their encephalon. The sensory nerves seem to retain their functions as long as the motor nerves. If the nutrient artery of the hind limb (common iliac) of a frog be tied, and geissospermine be introduced under the skin of a fore limb, the limb of which the artery is tied is protected from poisoning; but stimulation of the sensory nerves, both of the poisoned and of the non-poisoned side, gives rise to reflex phenomena,

which are absolutely identical. The excito-motor function of the nerves becomes extinct only when the animal has been inert and torpid for a certain time. Muscular contractility is not affected by geissospermine, for it still persists after the death of an animal poisoned by that substance. In conclusion, the active principle of geissospermum læve is a paralyzing poison, which seems to have the power of suppressing the physiological properties of the central nervous gray matter, and particularly of the gray matter of the spinal cord.

Observations on the Transfusion of Blood.

It is stated by Dr. JOHN BOYD, in the Edinburgh *Medical Journal*, November, 1877, that the introduction of the circulating fluid of sheep, lambs and calves into human veins has been tried in seventeen instances—the first successfully from that of Denis and Emmeritz, 1667; one by Esmarch died when the operation was barely begun; another by Dresser, in 1861, presented post-mortem appearances which exculpated the attempt; the others, by Albini, of Naples; one by Bliedunq, another in the hospital of Wilmington, North Carolina, etc., had most satisfactory physiological effects. As to the choice of the blood to be transfused, that of his own species is every way preferable in man, and the male blood, in consideration of the greater richness in globules, and less proportion of albumen and water, is preferable to that of females. Venous blood defibrinated is equally efficacious and free from the risks of embolism. A case is quoted of L. De Belina, in 1869, from the *Gazette Médicale de Paris*, No. 2, 1870, which merits attention. This gentleman was in attendance on a Russian lady who was prematurely confined at the eighth month, in consequence of injury from a railway accident. At the emergence of the fetal head at the vulva the neck appeared tightly enclosed in two turns of the umbilical cord, so that it was born asphyxiated, anæmic, violet-colored, with all the signs of impending extinction of life. De Belina thought then of transfusion; there was no time to be lost; the need of blood was urgent. He took the placenta in his two hands, squeezed out and defibrinized the blood, and with a glass syringe injected it into the umbilical vein of the neonatum. The infant immediately revived; the return of the rosy color was perceived, the pulse rose, free respiration succeeded, and the life was completely saved.

De Belina has therefore found a new source of blood, and has thus given a most useful practical lesson to the physician and obstetrician.

As to the quantity, experience demonstrates that from 60 to 100 grammes suffice for all indications in adults, 30 to 60 in children, and 25 to 35 in the newly-born.

On Alimentation by the Rectum

Dr. AUSTIN FLINT, of New York city, has an excellent article on this topic in the *American Practitioner*, January, 1878. After reporting some cases in point, he proceeds to consider the indications for rectal alimentation. In cases of disease seated in the œsophagus, at the cardiac orifice of the stomach and at the pylorus, involving sufficient obstruction to prevent adequate nutrition, it is a very obvious indication to nourish by the rectum. I can recall cases in my past experience in which, with our present knowledge of rectal alimentation, as there is reason to believe, life might thereby have been much prolonged and suffering alleviated. In a case of cancer of the œsophagus, occurring in the practice of Dr. Purple, within the past year, suffering from a sense of hunger was removed, and probably death postponed, by nutritive injections. Recently, in a case treated by Dr. Varrick, of Jersey City,

. stricture of the œsophagus occurred, which was relieved by the use of bougies. Before this was accomplished, the patient, who was extremely feeble, would probably have died had he not been sustained by food introduced into the rectum. He was subsequently able to take very little aliment into the stomach, owing to an invincible anorexia, probably connected with degeneration of the gastro-intestinal tubules, and, under these circumstances, life was apparently prolonged by a continuance of the nutritive injections.

As regards prolongation of life and recovery, of course, the success of rectal alimentation will depend greatly on the nature of the disease, irrespective of the mechanical obstruction. In cases of carcinoma, the most frequent of the obstructive affections in these situations, recovery is not to be expected, and postponement of a fatal ending, for a greater or less period, is all that can be hoped for, beyond relief of the suffering incident to death by slow inanition. Such cases, it is evident, afford no criterion of the expectations and hopes which may be entertained when obstruction alone threatens life, and especially when the obstruction may be removed if only time can be gained.

In gastric ulcer, to sustain the patient wholly by the rectum, thereby securing for the stomach absolute rest, is not only fulfilling an important indication, but there is clinical proof that by this measure alone the disease is effectively treated. Twelve years ago I treated in this way a case in Bellevue Hospital, nourishing the patient exclusively by injections of the essence of beef and milk, repeated every four hours, for three weeks. The treatment would have been continued longer but for the irritability of the rectum. However, at the end of that period the stomach tolerated food, and the patient recovered. Dr. Balthazar Foster has reported several cases in which complete rest of the stomach, thus secured for a few days, was followed by speedy recovery.* Other cases have been reported in medical journals, showing the success of the treatment.

The treatment is indicated in cases of hæmatemesis (gastrorrhagia), whether the hemorrhage depend on gastric ulcer or not. The rationale is the complete functional rest of the stomach which the treatment secures.

On the principle that rest of the inflamed part is of primary importance in the treatment of all inflaming affections, nourishment by the rectum is indicated in acute gastritis. In a case recently occurring in the practice of Dr. Leale, nothing was introduced into the stomach for ten days. The patient was nourished by injections, alternately, of beef essence, chicken broth and milk, repeated every two hours. After the first day or two, no dejection occurred during the remainder of the time that the nutritive injections were continued. The symptoms of gastric inflammation, under this treatment, disappeared; and the patient was so well satisfied with his rectal diet, and so apprehensive of the return of his gastric distress, that it was difficult to persuade him to return to alimentation by the mouth. When he consented to the change, the stomach was found to tolerate food without inconvenience. This case was seen by Dr. Purple and myself, in consultation. Quite recently a case of acute gastritis, caused by alcoholic excesses, in my service at Bellevue Hospital, was treated by nutritive injections, which, with a blister to the epigastrium, constituted the whole treatment. The gastric symptoms speedily diminished, and after a few days the patient was able to ingest food without inconvenience.

Persistent irritability of the stomach and almost complete intolerance of food—a purely functional affection, occurring chiefly in women and especially in early life—

* Clinical Medicine. Lectures and Essays. London, 1874.

is an extremely rebellious malady, with which every physician of much experience is familiar. There is ground for the opinion that, in these cases, securing complete temporary rest of the stomach will be found to be the most effective plan of treatment. Within the past year I have met with two instances in which it has proved successful. One of the cases was in the practice of Professor Lusk, and the other was a patient of the late Professor Crosby. In the latter case, Leube's meat solution, as prepared by Frederick Hoffman, apothecary and chemist, of New York, was used; and, in the former case, the form of rectal diet employed by Leube, which will be noticed presently. Professor Lusk's patient was nourished by the rectum for seventeen days. During this time there was no apparent loss in weight. Professor Lusk states, in a note kindly furnished, that during the greater part of this period "the stomach was unable to retain even a swallow of water, so that, in addition to the nutritive enemata, considerable quantities of water were introduced into the system by the bowel, to allay thirst." He adds: "I have had a number of similar cases since, but in all the irritability of the bowel has proved an insurmountable obstacle to prolonged treatment." In a recent hospital case of typhoid fever there was exceptionally constipation, and this was associated with great gastric irritability. The patient, under these circumstances, was nourished for two weeks by the rectum. During this period convalescence took place, and the patient was so well satisfied with the rectal alimentation that she was reluctant to begin to take food by the stomach.

Rectal alimentation is clearly indicated in the cases of invincible anorexia with progressive diminution of weight and strength, ending fatally from inanition, the cases occurring in persons of middle and advanced age, and the pathology, probably, involving degeneration of the gastro-intestinal tubules. I have not clinical data sufficient for forming an opinion in relation to the success of the measure in these cases. It is to be feared that the morbid conditions which underlie the inability to ingest food, and the defective ability to digest in the stomach and small intestine, will be found to prevent the digestion of aliment introduced into the rectum.

Finally, recourse is to be had to rectal alimentation when, owing to blunted mental perceptions or coma, an adequate amount of food cannot be introduced into the stomach by voluntary deglutition. If alimentation by the rectum will suffice, it is an easier method, under the circumstances, than the introduction of food into the stomach without the voluntary coöperation of the patient. And the rectal method of nourishment, if sufficient, is to be preferred to its forcible administration through the œsophagus in spite of the patient's resistance.

Rectal Diet.—What kinds of aliment are best suited to form a rectal diet, is an important point of inquiry. With reference to this inquiry, I cannot pass by the physiological question, how is digestion in the large intestine effected? From the failure to procure from the mucous membrane of the colon and rectum a digestive juice, and from experiments on lower animals, physiologists have been led to doubt the ability of these portions of the alimentary canal to perform the function of digestion. Yet, secreting glands analogous to those of Lieberkühn are found in considerable numbers in the large intestine, and it is not difficult to understand that they may take on a vicarious activity when the glands of the stomach and small intestine are not excited by the presence of ingesta. This supposition is not inconsistent with the absence of a digestive juice in the large intestine, when digestion in the stomach and small intestine is not interrupted. Another supposition which I will venture to make is, that food introduced into the rectum excites secretion by the gastric

and intestinal glands, and in the absence of ingesta in the stomach and small intestine, the fluids secreted by these glands pass into the large intestine in a sufficient quantity to effect digestion within the latter. Whatever may be the explanation, clinical experience fully establishes the fact that the digestion of animal broths, milk and eggs, takes place in the rectum without the addition of agents, namely, pepsin and hydrochloric acid, which are capable of effecting artificial digestion. This is not saying these agents are not useful as conducive to digestion within the large intestine.

The articles of diet just named have generally been used in nourishing by the rectum. That they are adequate to the needs of assimilation and nutrition is demonstrated by the cases which have been cited. Leube has proposed a form of rectal diet, called the "pancreatic meat emulsion," which is prepared as follows:—From five to ten ounces of meat are chopped very finely, and one-third of this weight of finely minced pancreas (of the pig or ox), free from fat, added. This mixture is then rubbed up in a mortar with five ounces of lukewarm water, being reduced to the consistency of thick soup. Leube's "meat solution" would seem to be not less appropriate as a diet for the rectum than for the stomach. This differs from his rectal food in having been exposed to the temperature of boiling water, in a Papin's digester, for over thirty hours, hydrochloric acid having been added, and afterward nearly neutralized by the carbonate of potassa.*

It is a rational supposition that what is true of digestion in the stomach and small intestine, is true also of digestion in the large intestine, namely, a varied diet is better than the persistent use of the same kind of food prepared in precisely the same way; in other words, the alternation of different kinds of food may be of importance. Reasoning by analogy, it is probable that the addition of agents which are found to promote the digestive process in the stomach, and which are capable of effecting digestion out of the body, may be advantageously added to the rectal diet. I refer especially to pepsin and the hydrochloric acid. Concerning these and other points relating to rectal diet, the results of further clinical experience are desirable.

Thus far, in the cases which I have had the opportunity of observing, the articles of diet employed have been the "meat solution," and the "pancreatic meat emulsion" of Leube, "Liebig's extract of meat," with milk, milk either alone or combined with egg, beef, mutton and chicken broths. These varieties have severally proved satisfactory.

Practical Rules in Rectal Alimentation.—Practical rules, based on our present knowledge of rectal alimentation, will, doubtless, receive important additions and modifications from experimentation and further clinical experience. In the cases which have come under my observation, the nutritive injections have generally not been carried above the rectum. It is easy to introduce a flexible tube, and inject nutriment into the colon. From half a pint to a pint of milk was, in this way, frequently injected in a case which I saw many times with Dr. Linsly and Dr. Ellsworth Eliot, the patient being an aged man, suffering from a complication of exhausting maladies, and either unable or unwilling to take by the mouth an adequate amount of food. These injections were retained, causing no inconvenience, and

* The formula for the meat solution is as follows:—Take 1000 grammes of beef, free from fat and bone, put into an earthen or porcelain jar, and add 1000 cc. of water and 20 cc. of pure hydrochloric acid. Place the jar in a Papin s digester, screw the cover tight, and boil from ten to fifteen hours, stirring occasionally during the first few hours. Then remove the contents of the jar to a mortar, and rub the mass until it has the appearance of an emulsion. Boil again for fifteen or twenty hours without raising the cover of the digester. Add pure potassium carbonate until the mass is nearly neutralized, then evaporate to a pulpy consistence.

apparently contributing to alimentary support. It remains for clinical experience to determine whether this method has not decided advantages.

Introduced into the rectum, the quantity at each injection should not, as a rule, be large. From three to six ounces may be stated as the average quantity. The intervals between the injections should be from three to six hours. If not well tolerated, a few drops of laudanum, or a drachm of the United States solution of morphia, may be added to each injection. This is not necessary in all cases. It is a point to be settled by experience, whether the addition of an opiate impairs the activity of digestion in the large intestine; in other words, whether opium has the effect here which it has upon stomach digestion. Prior to commencing rectal alimentation, the contents of the large intestine should be removed by simple enema, and, if not contraindicated by the feebleness of the patient, an efficient laxative should be given by the mouth. The nutritive injections sometimes provoke feces evacuations at first, owing to the contents of the large intestine not having been entirely discharged, and afterward they are retained, no evacuation taking place for days or weeks, without any uncomfortable sense of accumulation. As a substitute for drink, when the need for more liquid than that contained in the nutritive injections is expressed by thirst, and when water or pieces of ice are to be withheld from the stomach, simple water may be injected, and sponging freely the surface of the body is a means of the introduction of liquid. If alcoholics be indicated, they may be either added to the nutritive injections, or properly diluted and injected separately. Alcoholics administered by the rectum are not, perhaps, open to the moral objections sometimes made to their use *per os*. The addition of a little brandy or whisky does not appear to impair the ability to retain the injections. If, however, it should seem to be otherwise, alcoholics, if indicated, may be introduced hypodermically.

It happens not infrequently that nutritive injections at first are not retained, and they are discontinued in consequence. If persisted in, however, they may, after a short time, be well tolerated. As Leube says, the rectum seems to acquire the ability to retain nourishment. On the other hand, the injections are first retained in some cases, but after a time the rectum becomes intolerant of them. When the latter happens, it is advisable to discontinue them for a day, and, after this brief period of rest, the ability to retain them may be regained.

It is certainly not necessary in all cases, as advised by Foster and others, to wash out the rectum by a simple enema before each nutritive injection. So far as my experience goes, this requirement is the exception rather than the rule.

III. ANÆSTHETICS.

The Action of Anæsthetics.

In the *Lancet*, November 24th, 1877, we find a summary of some late researches on this subject. Among them, it is noted that Professor BINZ concludes an article on the officinal sleep-producing substances, in the *Archives for Experimental Pathology*, by saying that these agents possess the power of producing a kind of coagulation of the substance of the cerebral cortex, while other agents, though nearly allied to the former in chemical composition, do not possess this power. Morphia, chloral, ether and chloroform possess, he maintains, a strong affinity for the substance of the cortex of the brain in man; and when they are introduced into the blood they

enter into combination with the cerebral substance, opposing or impeding the disintegration of the living substance, and thus rendering it unfit to discharge the functions required of it in the living state. In a paper on the same subject in the *Centralblatt*, Heinrich Ranke observes that protracted study of the effects of anæsthetics has led him to very similar conclusions. He has found that the action of chloroform, ether and amyl on frogs first produces a condition in which, just as in poisoning by curare, no contraction can be induced in muscle by any kind of irritation applied to the motor nerves, though the muscular tissue itself reacts to direct stimulation, and the current in the nerves remains constant both in force and direction. In a later stage of the anæsthesia the muscular tissue itself ceases to respond to the most powerful induction currents, though its proper electro-motor force remains unweakened; and, lastly, at a still more advanced stage, the whole muscular tissue of the body passes into a condition of rigor. He has further found that a solution, either of albumen from the brain or of myosin from muscle, in very weak salt and water, is precipitated by the vapor of the three above-named anæsthetics, and that their power of producing muscle rigor in the case of muscle depends on the coagulation of the myosin. It would have been exceedingly interesting if the view of Binz to the effect that morphia acts also as a coagulating agent upon the ganglion cells could be corroborated, since, if such were the case, it would tend to show that the various kinds of anæsthetics act essentially in the same manner.

Additional experiments have lately been instituted by Ranke, which demonstrated that not only chloroform and chloral hydrate, when injected into the arteries, caused rapid stiffening of the muscles, but that the same influence was exerted by ether, amyl, bromoform and bromhydrate, while when tannin, cupric sulphate, mercury chloride, ferric sulphate, or spirits of wine were injected, though strong fibrillar contractions occurred, and coagulation of the blood, followed by death, in no instance was rigor produced. Iodoform, indeed, appears to form an exception to the conclusion that the rigor-producing action of the anæsthetics is something peculiar to them, for it is not known to possess anæsthetic properties. If injected in solution in ether, rigor is immediately produced, but ether has itself a stiffening action on muscle. Nevertheless, Ranke thinks he can distinguish between the action of the iodoform, which is immediate and intense, and that of the ether, which comes on later and is less powerful; and he attributes the failure of iodoform to act as an anæsthetic to its insolubility merely, which, as it were, masks its proper action. Ranke was unable to find that solutions of morphia were able to exert any coagulating influence on muscle, either within or without the vessels. It may be asked what relation does the action of these agents on muscle bear to the process of anæsthesia, and in reply Professor Ranke observes that anæsthetization obviously cannot depend on such a complete coagulation as admits of no further change, since the effects produced by anæsthetic agents are but transitory. But it is very conceivable that an action which, in its final stages, leads to coagulation of albumen may, in its earlier stages, render, to a certain extent, fixed and immovable the albuminous molecules in the ganglion cells of the brain, and afterward in nerve and muscle, the effect passing off with the removal of the cause.

Death from Ether.

In November last, a death occurred in England, from ether, an account of which we take from the *Medical Press and Circular*, November 20th, 1877:—

The patient, unmarried, aged 48, health apparently perfect, saving tumor of the

breast, which needed removal, and some slight feebleness of heart detected by the stethoscope previous to anæsthesia. Stimulant administered beforehand, and half an ounce of ether given by a valved inhaler, with free admission of air. Immediate cyanosis of face, stertorous breathing and death. These are the symptoms familiar in connection with chloroform death, and they naturally suggest syncope as the cause, an explanation which would at once destroy the faith of those who do not believe that ether can, under any circumstances, produce heart paralysis, whatever other dangers may attend its use. The post-mortem examination fortunately tends to remove these doubts, which derive much of their strength from the suddenness of the death and the insignificance of the dose inhaled. The following is the testimony as to the cadaveric appearances:—

Mr. T. Sympson said: On examining the heart we found that it was feeble and flabby, and I have since examined some of the tissue, and found that it had undergone the change known as fatty degeneration. The liver was firm, but the whole of its upper surface was attached by old adhesions to the under surface of the diaphragm, the muscular partition between the chest and the abdomen. There was a little effusion of serum on the brain. The air cells of the lungs were dilated. The valves of the heart were in a perfectly healthy condition. In my opinion the cause of death was the failure of the heart's action, and the impairment of the functions of the diaphragm, in consequence of its attachment to the liver. The fibres of the heart were so feeble as to be unable to bear any extra strain, and the efforts at resuscitation proved abortive, owing to the failure of the functions of the diaphragm.

Mr. C. Brook deposed: The right ventricle was full of blood, and the walls of the right ventricle were extremely thin, much thinner than is natural. Otherwise the heart appeared quite natural. The lungs were emphysematous, with dilated air cells; the lower lobes were congested with fluid blood, and together with the liver, were studded with nodules of cancer. The liver and the diaphragm were inseparable; indeed, I should consider that the diaphragm was quite immovable, and, therefore, that the room for the expansion of the lungs was very much diminished. There was nothing about any other organ which could have had any connection with death. I should consider that the cause of death was the fixity of the diaphragm, and the emphysematous state of the lungs, preventing their proper expansion, and that, therefore, the blood was unable properly to pass through them; and as the thin right ventricle of the heart was unable to force it through the lungs, it became gorged with blood, and stopped instantaneously.

The testimony of these gentlemen strikingly corroborates the opinion, that the risks of ether are distinctly pulmonary and not cardiac, and that the close attention of ether anæsthetists must be directed to the state of the bronchi-tracheal and air circulation within the lung, instead of, as heretofore, the force and mechanical perfection of the heart. In this instance the patient may have died from heart lesion, but, if so, it was a lesion directly arising from the hindrances to free action of the lungs, and not from fatal want of power in the heart itself; nor from the idiosyncrasy which produces syncope after a minute dose of chloroform. Undiscovered lung obstructions may be as liable to be dangerously aggravated by ether inhalations as are undiscerned heart lesions by chloroform, but they are much slower to take fatal effect, and in almost every instance the anæsthetist has, in the case of ether, ample time to retrace his steps, while, in the case of chloroform, his patient is dead before any effectual means to counteract the anæsthetic can be adopted.

GENERAL MEDICINE.

I. HISTORY OF MEDICINE.

The Discovery of the Circulation of the Blood.

The Edinburgh *Review*, January, 1878, gives a discussion of the share that Harvey and Cesalpino respectively took in the discovery of the circulation of the blood. The dispute as to whom the credit of having discovered the complete circulation of the blood belongs, began when Harvey published his work "De Motu Cordis," in 1628. Some said that Harvey had stolen the idea from the writings of Plato, and others ascribed the knowledge of the circulation of the blood to King Solomon. The truth is that some notion of the circulation was entertained by most of the older anatomists. Hippocrates, Aristotle, Praxagoras, Erasistratus and Galen, all speak in terms more or less explicit of the motion of the blood within the blood vessels, but every one of these writers was led astray by the erroneous views of physiology which in their day prevailed. Servetus, who was burned as a heretic, at the instigation of Calvin, in 1553, discovered the pulmonary half of the circulation, and, perhaps, also the systemic half, although his phraseology is too ambiguous to bear a nice analysis.

The relative merits of Cesalpino and Harvey are summed up thus, in the words of the writer in the Edinburgh *Review*: "To Cesalpino the merit is due of having first stated an important truth, and even of having partially proved it; but Harvey took a view of that same truth which marks out a new era in scientific history. Each observed the same vital motion of the blood through the irrigating system of the body, but the causes assigned for it by each were entirely distinct. The contrast of Cesalpino's '*agent espiritu*' with Harvey's '*hæc omnia à motu et pulsu cordis dependere*,' exhibits the antithesis of mediæval and modern modes of looking at nature."

Treatment of the Insane in Former Times.

In a lecture on insanity, by Dr. JOHN SIBBALD, F.R.C.P.E., given in the *Journal of Mental Science*, January, 1878, he says, speaking of the care of the insane in Great Britain:—

No public measure was adopted in this country for dealing comprehensively with the question till the year 1828, or it may, perhaps, be more accurately said, till the year 1845, when the Act was passed under which the present lunacy administration in England is carried on. The "Vagrant Act," passed in 1744, showed, indeed, that the community was becoming conscious that it was the duty of the State to deal with the matter in some way. By one of the sections of that Act, two justices of the peace were authorized to issue a warrant for the arrest of any person furiously mad, or so far mentally disordered as to be dangerous if left at large. He was then to be locked up in a secure place, and if it was found necessary, he was to be chained and confined in his own parish. The prevalent view of insanity still was

that the term could only be properly applied to such a condition as rendered a person dangerous to others; and the necessity for combating the danger on behalf of the rest of the community was regarded as so important that every other consideration sank into insignificance. It was still the general idea of society which seems to have been expressed by Justice Tracy, when in 1723 he compared a "madman" to "a brute or a wild beast." This date may, however, be accepted as marking in the history of our own country the perceptible rise of broader and juster views. It was about this time that it began to be recognized that among the members of the abnormal class which had now to be regarded as insane, there were a large number who could not properly be left at large, and yet who were in no way brutish or wild.

It is well that we should recall to our minds for a moment what was the kind of provision made at that time for the care and treatment of those insane persons who could not be left at large. We cannot obtain complete descriptions of the condition of asylums generally during the last century, but we have evidence enough that they were mere prisons, and prisons of the most loathsome character. This is shown in the Report of a Committee of the House of Commons, which sat in 1763. The disclosures which it contained led, ten years afterward, to the passing of an imperfect measure intended to reform the administration of asylums; and this Act constituted the only authoritative regulator of the treatment of the insane till 1828, though it proved altogether inadequate to prevent the continuance of the most frightful abuses.

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Such was the state of asylums in Britain. In Germany they were no better. "One is seized with horror," says Franck, "on entering these refuges of misfortune and affliction; one hears nothing there but cries of despair. It is frightful to be assailed by the miserable creatures, clothed in rags, and disgusting with filth; while others are prevented from approaching by chains and ropes and the brutal treatment of the keepers." In France the Salpétrière and the Bicêtre were almost the only establishments to which the same sad description would not apply. The cells, dens or cages in which they were kept, writes Esquirol, in 1818, "were everywhere horrible; without air, without light, damp, narrow, paved like the street, often below the level of the ground, and sometimes underground. Chains, filth, and a supply of the coarsest food, often insufficient in quantity to support life!" Such, throughout Europe, till within the last fifty years, was, with an exception, probably, for a short period in Italy, usually regarded as an appropriate provision for the class of persons to whose condition the term insanity was then commonly applied.

II. STATISTICAL MEDICINE.

A Plan for Improved Statistics of Insanity.

In the *Journal of Psychological Medicine*, December, 1877, Dr. MAJOR writes:—

The feeling of utter failure experienced in endeavoring to draw up with accuracy a table of causes in the usual manner, led me to consider whether it would not be possible to devise a system which, while being simple and easy of application, might, at the same time, embody more facts than the usual method, and so be more truthful

and accurate. And, finally, a scheme suggested itself, to describe and illustrate which will now be my object.

The course proposed is extremely simple. It is (1) that in recording each case, with respect to its causation, the circumstances, however few, or however numerous, which seem, on the information available, to have exercised a causative influence, should be fairly stated; and (2) that in placing the supposed causes in a tabular form, they should be simply added together, like with like, and irrespective of the number of cases under consideration. To give an illustration of the plan suggested, I take six cases at random from the case book.

Name.	Causes.
M. S.	Hereditary tendency (to insanity), alcoholism, previous attacks.
M. A. S.	Over-lactation, grief.
E. P.	Old age, grief.
S. J. C.	Hereditary tendency, climacteric period.
S. L.	Old age.
E. A. H.	Grief, privation, climacteric period.

Adding and tabulating like causes in the above six cases, the results may be expressed as follows:—

Hereditary tendency	contributed to the production of		2	Cases.
Alcoholism	"	"	1	"
Over-lactation	"	"	1	"
Grief	"	"	3	"
Old age	"	"	2	"
Climacteric period	"	"	2	"
Privation	"	"	1	"

Of course, if desired, the subdivision into moral and physical causes can, under this system, be made in the usual way, and probably the table would derive additional value by the percentage value of each causative agency being given. These are matters of detail; the essential point being that of no single cause it is stated that it has produced a given number of cases, but that it has been concerned in their production.

The chief advantage claimed for the system, as now submitted, has been already pretty clearly indicated in the course of my remarks. Instead of pausing in perplexity over cases to the causation of which several influences appear to have contributed, and endeavoring to weigh their relative importance, so as to be as little incorrect as possible in stating the cause, there is nothing to do but to record carefully and conscientiously all the influences which appear to have played a part. Take a case (no uncommon occurrence) in which there is shown to have been hereditary tendency to insanity, mental anxiety, and alcoholic excess, as facts in the history. Who shall decide on which to throw the responsibility and which to exclude? Is it not more probable that all have played a part, and that to attempt to dissociate them is impossible, and must fail? The system proposed provides for any such contingency, and gives to all the adverse influences a place.

But it may be urged that the value of positive data as to the number of cases of insanity traceable to a given cause, and that cause only, is too great to be given up. It would certainly be so if it could be shown that in a majority of cases it were possible to ascertain the fact; but if, as I have contended, this is impossible, then, as it appears to me, it is better to remain satisfied with data which, if not so definite

and precise as could be wished, nevertheless express important facts and furnish reliable information.

It may be objected, in the second place, that by the proposed method all cause would appear to be of equal potency; that is to say, no special indication is given of those which singly have, or appear to have, occasioned the insanity. I must admit the force of the objection, which, however, applies equally well in reality, if not on paper, to the system commonly in use. Practically, the most important cause will be that the occurrence of which is most frequently noted, and this is at once indicated in the method of tabulation proposed.

Mortality of Abstaining and Moderate-Drinking Lives.

The Doctor, February 1, says: At the Association of Medical Officers of Health, a paper has been read by Dr. EDMUNDS, entitled "Observations on 1000 Consecutive Deaths occurring within seven years after Insurance, in the experience of the Temperance and General Provident Institution, with notes on the Comparative Mortality among Abstainers and Non-abstainers."

Reviewing a large mass of figures, Dr. Edmunds showed that, among the 1000 deaths which he had tabulated, the mortality of the abstainers, in comparison to the carefully-sifted moderate drinkers, was as follows, among equal numbers of insurants:—

In the gross mortality three abstainers died, where four moderate drinkers died.

Of diseases of the nervous system, 70 abstainers died for every 108 moderate drinkers.

Of lung disease, 282 abstainers died for every 261 moderate drinkers.

Of heart disease, 51 abstainers died for every 47 moderate drinkers.

Of liver disease, kidney disease and "dropsy," taken together as practically the diseases of the excretory organs, 42 abstainers died where 78 moderate drinkers died.

Of zymotic diseases, 82 abstainers died where 54 moderate drinkers died.

Of casualties, 46 abstainers died where 39 moderate drinkers died.

The abstainers died of lung disease, of heart disease, of zymotics, and of casualty, in larger ratio than the moderate drinkers, while from nervous disorders and disease of the excretory organs their mortality had been small. Dr. Edmunds accounted for this by supposing that persons with larger nervous energy would tax their physical frame more severely, and would run risks to life which men of less nerve would avoid. Thus the larger proportion of total abstainers died from disease of the respiratory and circulatory apparatus, in consequence of overwork, and from accidental injury, in consequence of extreme courage (or shall we say?) recklessness. Some interest has been excited by the figures, but we need larger numbers from which to draw conclusions on several points.

Statistics of Life in England.

A writer in the *Quarterly Review*, January, 1878, basing his figures on the most carefully-prepared statistics, takes a generation of one million persons, and traces its journey from the moment of birth to the end of life. Of these, taking the whole of England, more than one-fourth die before they reach five years of age, and most of the survivors have been attacked once or oftener by disease. During the next five

years the tenure of life becomes more sure, and between five and ten years of age the number of deaths is less than a seventh part of that of the first quinquenniad. Between ten and fifteen the average mortality is lower than at any other period. From fifteen to twenty the number of deaths increases again, especially among women, many of whom fall a prey to consumption and to the perils of childbirth. At this period the influence of dangerous occupations begins to affect the death rate. Fully eight times as many men as women die violent deaths. The number of violent deaths continues to rise from twenty to twenty-five, and keeps high for at least twenty years—that is, until the age of forty-five is reached. Consumption is prevalent and fatal from twenty to forty-five, and is responsible for nearly half the deaths. At from thirty-five to forty-five the effects of wear and tear begin to reveal themselves, and many persons succumb to diseases of the important viscera. By fifty-five the imagined million has dwindled down to less than one-half, or 421,115. After this the death rate increases more rapidly, and, although the number of lives grows less, the number of deaths in each of the twenty years after fifty-five increases; the higher rate is sustained for ten years longer, until, at last, by degrees all disappear. It is somewhat surprising to find that at seventy-five 161,124, on an average remain; at eighty-five 38,565, of whom Dr. Farr calculates that only 202 reach the age of one hundred years. At fifty-three the number of men and women surviving is about equal, but from fifty-five and onward the women exceed the men. Of 100 women living at the age of fifty-five and upward, 11 are spinsters, 43 widows, and 46 wives; of 100 men, 9 are bachelors, 24 widowers, and 67 husbands.

As regards occupations, it is interesting to note that while the clergy generally, whether of the Established Church or Dissenting ministers, or Roman Catholic priests, have, on an average, good health, members of the medical profession are subject to a high rate of mortality, which, up to the age of forty-five is, we are told, much above the average. Chemists and druggists, commercial clerks, mercers and drapers also seem to be less healthy than the average. Publicans, butchers and fishmongers have not, as a rule, good lives; but the baker, curiously enough, does not appear to be more unhealthy than the average of his fellow-citizens. Persons who work in wood, as coachmakers, wheelwrights, carpenters, joiners and sawyers, have healthier lives than the average of men. The blacksmith, for instance, is not, on the average, so healthy a man as the wheelwright. Carvers and gilders, plumbers and glaziers, suffer much from the metallic poisons to which they are exposed; while the mortality of those engaged in earthenware manufacture approaches, after the age of thirty-five, double the average. Tailors and shoemakers are also unhealthy as a class. As might be expected, farmers and agricultural laborers are, at the present time, among the healthiest classes; but the young farmer, for some undiscovered reason, appears to have a less healthy life than the laborer of the same age; from the age of thirty-five and upward, however, the farmer is the healthier of the two.

Statistics of Diseases of the Eye.

Professor HERMANN COHN, of Breslau, at the meeting of the German Society of Physicians, at Munich, in 1877, stated that for three years he had endeavored, by means of circulars addressed to the various clinics, to ascertain how the diseases of the eye were distributed over its various parts. In 1872 he received exact statements concerning 111,691 cases treated in twenty-four clinics; in 1874 concerning 90,510 treated in twenty-seven clinics, and in 1875 concerning 95,125 cases in thirty-

five clinics, therefore, in all, nearly 300,000 cases. These furnished the following proportions per thousand :—

	1872.	1874.	1875.
Conjunctiva	290	294	304
Cornea	201	214	210
Sclera		4	4
Iris	59	36	40
Chorioidea		30	26
Glaucoma	9	14	10
Retina and Opticus	47	28	27
Amblyopia		12	13
Amaurosis		10	7
Lens	56	57	59
Corpus Vitreum	5	8	9
Bulbus	29	15	16
Refractio	110	85	92
Accommodatio		42	37
Musculi	34	29	29
Nervus Quintus		2	2
Org. Lachrym	25	27	25
Orbita	...	2	2
Palpebræ	101	85	81
Diversa	...	6	7
	1000	1000	1000

Prof. Cohn observes that the remarkable agreement observed in the per centage of the three years indicates that there must be some law governing the distribution.

III. STATE MEDICINE.

Medico-Legal Researches on Spermatozoa.

Dr. LONGUET has devoted himself to this important question, and in October last communicated to the Society of Legal Medicine, Paris, the result of his researches.

His method of discovering spermatozoa is simple and practical. In order to isolate these special bodies, the expert must adopt some primary manipulations, but there is danger of creating artificial spermatozoids, which may be confounded with true ones, as, according to Dr. Longuet, certain vegetable fibrillæ contain in their interior ovoid granulations, which, as soon as the cells are broken, become free, and disperse themselves in the liquid. Dr. Longuet has sought for a coloring material, which, by its elective action, will distinguish the various animalculæ, and he has fixed on ammoniacal carmine, such as is used in histology. He advises the following method of procedure:—

1st. Take a small piece of the stuff stained, as near as possible, from the centre of the stain.

2d. Steep it in a small quantity of distilled water colored with some drops of the ammoniacal solution of carmine (5 or 6 drops to 5 grammes of water).

3d. Allow it to macerate for thirty-six or forty-eight hours or more.

4th. Break up the stuff with great care, raveling it bit by bit.

5th. Pick out, one by one, and separately, each portion.

6th. Examine them separately under the microscope, with a power of 500 diameters, in a drop of ordinary glycerine.

If these rules are observed, the vegetable fibrillæ will be found uncolored, and perfectly refracting, and clusters of spermatozoa, the heads of which will be colored of a lively red while the tail is unstained.

The advantage of this method consists especially in affording the clearest results, under the most favorable circumstances, that is to say, when the stain is old, for nothing is easier than to isolate and recognize spermatozoa, when the stain is recent.

The Medico-Legal Relations of Homicidal Insanity.

On this important subject Dr. JOHN CHARLES BUCKNILL writes, in the *Lancet*, April 20th, 1878:—

Our colleagues and countrymen have adopted the theory of impulsive insanity, from the distinguished French physicians who flourished early in this century, and especially from Esquirol, Georget and Marc, but I do not remember to have seen it remarked that the latter derived their inspiration from an earlier, and still more celebrated writer—namely, from the founder of phrenology. It seemed strange that, although the first instances of *monomanie homicide sans delire* of the French authors are quoted from Gall, no credit for the idea was ever given to him; but a reference to Gall's great work "Sur les Fonctions du Cerveau," affords some explanation. In this treatise, replete with learning, full of common sense, and only spoiled by the dogmatism of cranioscopy, he indicates clearly the natural growth of "the impulse to kill, with enfeeblement of the moral liberty. There is," he says, "in man an inclination which advances by degrees, from a simple indifference to witness the sufferings of animals, and a pleasure in seeing death inflicted, even up to the most imperious desire to kill. Sensibility may reject this doctrine, but it is only too true. Whosoever wishes to form a right judgment of the phenomena of nature, ought to have the courage to recognize things as they exist, and, in general, not to make man out better than he is. There are," he adds, "both among adults and children, both among common and cultivated men, some who are sensitive, and some who are indifferent, to the sufferings of others. Some feel pleasure in torturing and killing animals, without our being able to attribute it either to education or to habit," and he cites instances in which men had become butchers, and even executioners, to gratify this inclination, and a number of other horrid instances less within the sufferance of the law. The most remarkable of these is that of M. le Duc de Bourbon Condé, Comte de Carolais, who tortured animals, exercised atrocious barbarities upon women, committed many murders without interest, without vengeance, without anger; and who even shot men while roofing houses, for the barbarous pleasure of seeing them fall. This case has been repeatedly quoted from Gall, as an instance of homicidal insanity, or of moral insanity; but, although he admits that this "detestable inclination may always be derived from a vice in the organization," he adds—and here is the great difference between him and his French disciples, which they pass over in silence—"Up to this point the inclinations [*penchants*] of which I have spoken are not yet included among those which characterize a true alienation. These inclinations necessitate the most energetic measures, and criminals of this kind cannot be tolerated in society. Most of them even, in order that they may not destroy men, ought to be themselves killed, like ferocious beasts." This is a notable admission of the German philosopher, that a man suffering from detestable inclinations or dispositions, which

have their sole origin in a vice of the organization, is yet not a lunatic, and ought to be punished.

The French medical advocates of homicidal monomania whom we have named all admit that there are two distinct forms of the malady; one in which there is delusion or some other recognized form of insanity, and the other in which no derangement of the intelligence exists. It is true that they put the assertion in a somewhat less positive form than this, a saving clause being usually introduced, like that of Esquirol, who, after asserting the existence of this kind of insanity, says that "On ne peut pas observer aucun désordre intellectuel," and a corresponding loophole of hesitancy in statement is generally met with in the writings of our physicians who embrace the theory; although I think that, from Esquirol down to the last English writer on the subject, no one would be inclined to admit that if any intellectual disorder did really exist it would be likely to pass undetected by their skillful methods of inquiry. Their argument, moreover, in favor of homicidal insanity without any intellectual disorder, is founded, not upon the probability of intellectual disorder escaping detection, but upon other grounds—namely, upon the assumption that the passions and affections, or the will itself, may be diseased. Esquirol, quoted with approval by Georget, expresses this last argument with his usual precision. "If the intelligence and even the moral sensibility can be perverted and abolished," says he, "why should not the will, that complement of the intellectual being, not also be deranged or destroyed? Is it that the will, like the understanding and affections, does not experience vicissitudes according to a thousand circumstances in life? Has the will of the infant and the old man the same force as that of the adult? If it be so, why should not the will be subject to troubles, to perturbations, to morbid weaknesses, however incomprehensible the state may be to us?" A weighty passage this seems to be, not only in support of the theory of our recent English writers, who have declared that insanity is a disease of the will, but as a caution to our legal authorities that they should not needlessly vivify this Frankenstein of a will, for if there be a criminal will there may possibly be a diseased will. But surely both lawyers and physicians have something more certain to speak about than the attributes of the will.

Esquirol's description of this kind of homicidal insanity has become classical, our own authors having added nothing to it, and only altered it by changing the words "puissance irrésistible" into their new shibboleth—uncontrollable impulse. "There exists," he says, "a kind of homicidal monomania, in which one cannot observe any disorder of the intellect; the murderer is impelled by an irresistible power, by a dragging onward, which he cannot overcome, by a blind impulse, by an unreflecting determination. One is incapable of imagining that which carries him without interest, without motive, without intellectual error, to an action so atrocious and so contrary to the laws of nature." That is the statement around which all this discussion rages, and which has been called nonsense and mischievous rubbish by English judges, and by terms not more complimentary by legal authorities in the country of its origin. That is the statement of fact supported by the theory that the will becomes insane, which Caspar condemns in these decisive words: "We arrive at the dogma that there is no such peculiar species of insanity as is termed homicidal insanity, or homicidal monomania, and that forensic medicine neither can, nor ought to, recognize any such." Yet it is to this statement of fact our English authorities on the irresponsibility of the insane still adhere, and support, under the slightly-altered designation of homicidal or impulsive insanity, or uncontrollable impulse to kill.

It is of the first importance to understand, if we can, what is meant by an uncontrollable impulse to kill. Legal authorities, who have not unnaturally shied at the phrase, have, I think, been scared by the wrong end of it. They object to the predicate uncontrollable, averring that it means that which is not controlled, whereas there can be no doubt that the medical writers who have used it intend to designate by it action which cannot be controlled; and, as we have seen, this is the very essence of an act for which an insane person ought not to be held responsible. The subject impulse seems to me to be really the mischievous factor in the proposition, in its misleading application to intentional action, that is, to conduct. A recent medical author, whom I much respect, speaks of it as a "sudden, blind, motiveless, unreasoning impulse to kill;" and another author as "the frightful impulses which spring up in the diseased mind, and drive the individual to a deed of violence, as little under control as the convulsions of epilepsy, and the origin of them, perhaps, as little within the individual's knowledge as the origin of the impulse which entered the unfortunate herd of swine and drove them over a steep place into the sea, so that they were drowned, was within their knowledge." And I might multiply quotations, perhaps not quite so strong in epithet or remarkable in simile, but all stamped with the same belief that nothing exists, and nothing is wanted, "between the diseased condition and the act" save and except this impulse, the characteristics of which seem to me quite unlike those of any other mental state resulting in conduct. What is this strange power which, unconnected with the sequence of mental movements, arises without precursor; which is blind, although it attains its object; which has action without motive, and comprehension without reason? I must own that, to my mind, this term "impulse" is a word which darkens knowledge, and that its use seems wrong and misleading, in that it pretends to give the appearance of explanation to a problem of life which it is greatly to the interests of the community should be clearly stated and thoroughly unraveled. Suppose we change the word to its synonyms, and say disease of the brain gives rise to a sudden, blind, motiveless, unreasoning push or thrust forward to kill; just an inclination means the mental bend forward. There is no desire, or motive, or reasoning intention to strike the blow, but only that which we call a push received from the diseased action of the physical organ. No doubt impulses of the mind are spoken of in the slack and slovenly parlance of common life, to express rapid wishes and desires, whether they be or be not checked by others of greater force, as when it is said that a man has an impulse to throw himself from a height, which is an unreasonable desire very frequently felt, but very rarely indulged. To say that I have an impulse to throw myself over a precipice, but that I have a stronger impulse not to do it, is an odd use of language, which seems to lead to the conclusion that the word "impulse" is used instead of the word "desire" or "wish," when, upon reflection, the thing we wish to do or are impelled to do seems to be wrong, or bad, or mischievous. And with regard to the many men of whom we must believe that they have had the wish to kill, but the stronger wish not to kill, what do we get but ambiguity and obscurity of meaning by saying that they have had frightful impulses to commit murder, but stronger impulses not to commit murder? It may aid us in our inability to understand what is meant by this so-called impulse to murder, if we compare it with the so-called impulse to commit self murder. Referring to this, the author above quoted remarks: "It is certain that there is an exactly similar form of mania, or monomania, in which the patient is possessed with an impulse to kill somebody, is infinitely miserable in consequence, yet exhibits no other mental derangement. But

there is not the same willingness to recognize disease when the morbid impulse is not suicidal but homicidal." As an "example of uncontrollable morbid impulse with clear intellect and keen moral sense," he gives the case of a lady who was seized with a strong and persistent suicidal impulse, without delusion or disorder of the intellect. All the fault that could be found with her intellect was that it was enlisted in the service of the morbid propensity. She secretly tore her night-dress into strips while in bed, and was detected in the attempt to strangle herself with them. For some time she attempted to starve herself by refusing all food. She threw herself into a reservoir and was nearly drowned. After this she gradually regained her cheerfulness and love of life. Now it is to be remarked that in this and in other cases of a like kind the morbid impulse is long enduring; that it gives rise to actions of patient deliberation and of cunning contrivance; and therefore that the word "impulse" seems as inapplicable to such a persistent desire as it would be to say that Cruden, being insane, had an insane impulse to write the Concordance. Socially and ethically, the difference between suicide and murder is enormous, notwithstanding that they are so often the joint results of undoubted insanity. But who will affirm that the desire to end one's days is not controllable, and is not constantly controlled by fear of a greater evil?—not, indeed, by the exposure of the naked corpse, which is said to have stopped an epidemic of suicide among young women, but by the fear of shame among one's fellow-men, the fear of grief and ruin for those we love, and above all, by

> "The dr ad of something after death.
> Thus conscience doth make cowards of us all."

I find it difficult to advance arguments in contravention of the theory of homicidal insanity depending upon disease of the will, or against insane impulse to kill, without motive and without other mental derangement, simply because I cannot understand it; but the statement of fact that it is certain that there is such a form of disease deserves our earnest attention.

In the earlier editions of the "Manual of Psychological Medicine," fifty of the more remarable cases of homicidal insanity on record were analyzed by my indefatigable fellow-laborer in that work, and of these no less than thirty-five displayed no marked disorder of the intellect. Of the fifteen remaining cases, in ten there were delusions, and in five deficiency of intellect, and these, of course, came under another category altogether. Unfortunately, out of the whole number of fifty cases, only four have an English reference, and of the foreign ones almost the whole are from Esquirol and Marc, with a few from Otto, all of whom are committed to the theory, and whose accuracy of observation as to the facts is the very point at issue. Moreover, the French law of insanity is essentially different from our own, the sixty-fourth section of the code enacting that "there is neither crime nor offence when the accused was in a state of insanity at the time of the action," thus leaving the whole question widely at large, so that the proof of any state which can be deemed insanity is sufficient to exonerate. Of the English criminal cases which have been cited by various authors as examples of homicidal and impulsive insanity, those of which I have been able to obtain any information do not seem likely to bear thorough investigation. The celebrated Morningside case, if I am rightly informed by one of the most eminent physicians of our day, was clearly one of chronic lunacy with delusions. He has been seen with a placard on the wall over his bed, with the words "I am God Almighty." In Dr. Pownall's case I am informed that the

delusions of persecution and poisoned food which existed before the homicidal, but could not be detected during his residence at Bethlem, are now again quite recognizable. In other cases which have been referred to as instances of homicidal insanity, no insane impulse nor other sign of mental disease has been discovered after acquittal. Bisgrove, whose case has been so frequently referred to, never manifested any symptoms of mental disease while at Broadmoor, and I venture to assert that there is no example of *monomanie homicide sans delire*, or of impulsive insanity to kill, which can be referred to as existing in any English asylum in which there are no other symptoms of mental disease. In all my own experience, which is not small, I have never met with such a case, and I have made inquiry of two of my friends whose means of observation have been of the largest, and whose methods have been the most accurate and trustworthy, and each of them has assured me that he has never met with a single instance of homicidal insanity without other distinct symptoms of mental disease. When I mention the names of Dr. Crichton Browne, the Lord Chancellor's visitor, and for a long time the medical chief of the vast West Riding Asylum, and of Dr. Orange, the medical superintendent of Broadmoor, and add to their names my own, I think I present to you a trio of observers whose field of experience has been so wide that a form of insanity so pronounced in its characteristics as that under discussion could scarcely have failed to be embraced within it. Certainly I think such an event highly improbable; but that instances of men suffering from the so-called uncontrollable impulse to commit homicide without other mental disease should have come within the field of our observation, and yet not have been observed, is, I think I may say, impossible. The truth seems to be that homicidal lunatics are only too common, and that if you inquire carefully you will always find the lunacy, but that if you do not look carefully the prominent symptom of homicidal violence cannot escape attention, although you may possibly fail to observe its concomitants.

I am glad to be able to support this opinion with the concurrence of the late Dr. Morel, of Rouen, the most able, as I think, of French alienists. He declares that the cases in which an individual is said to be dragged by a blind instinct to kill, "*par quelque chose d'indéfinissable que le port à tuer*," must be very rare, and that facts of this kind rest upon incomplete observation of pathological phenomena and ignorance of the motives which influence the insane. The conclusion, therefore, to which we must come is, that homicidal insanity—the impulsive insanity to kill—is either due to imperfect observation, which has failed to detect real derangement, or to a mistaken estimate of a real criminal.

Deceptive Appearances of Recent Delivery.

A very important medico-legal case came before the New Orleans Medical and Surgical Association, turning on the question whether it is possible to decide positively, from an inspection of the parts, whether a woman has been recently delivered of a child. The discussion is reported in the New Orleans *Medical and Surgical Journal*, December, 1877:—

Dr. HOLLIDAY remarked that it is a question of the utmost difficulty to decide, on being called to a woman, whether she has recently been delivered of a child. Can we do this? He felt certain that a mistake could be made, and, to substantiate this statement, reported the following case:—

A married woman presented herself to him, professing to be pregnant for the third time. She supposed herself to be in the sixth month of gestation, but

complained of feeling strangely, different from her former pregnancies. The case progressed until the ninth month. He was summoned to her bedside. Violent labor pains were present. A vaginal examination revealed a softened and circular os slightly dilated; could not determine the presentation. Left the house and returned after an hour or two. The os had dilated, and a mass was protruding from the mouth of the womb; thought it might be a case of placenta previa. Labor progressed and hemorrhage was slight. In the course of time delivered her of a mass of hydatid cysts. The womb contracted well. A bandage was applied to the abdomen. On the third day there was milk in her breasts. The lochia made their appearance, and the discharge was as usual after labor.

Now, here was a case presenting evidence of a recently-enlarged womb, abdomen, and a lochial discharge from the vagina, and secretion of milk in the breasts. All the physical evidences of the recent delivery of a child were present. What would an expert have said, had he been shown this case, examined her condition, and has known nothing of her history? He would undoubtedly have said that she has recently been delivered of a child.

Sanitary Qualities of Water.

In his recent work, *Handbuch der Offentlichen Gesundheitspflege*, Professor SAYDER proceeds to consider the various kinds of water. He divides these into rain water, spring water, soil water, and open water courses. The quantity of foreign material in rain water varies from 20 to 50 milligrammes in a litre. A considerable portion of this is common salt; and Frankland found that rain collected near the sea coast, at a height of 100 feet, contained as much as 218 milligrammes in one litre. Ammonia and sulphuric acid are never absent, but the amount of organic matter is very small. Prestel has found that in rainbecks the water remains clear as long as rain continues to fall, but in times of drought a kind of decomposition takes place, the water acquiring a foul smell and taste. After a time, however, even though no fresh rain falls, the water clears again, the gases are given off, and water lice and fleas (daphnia, etc.) are found in it, the presence of which shows that it is capable of supporting animal life. In regard to spring water the author has little to say, except to point out the great influence of geological formation on the composition of the impurities of water. Soil water (grundwasser) is treated of at much greater length. This is, he says, not *per se* distinguishable from spring water; but near the habitation of man it assumes quite special qualities. It there becomes mingled with excreta and with the waste products of industry, till, in some instances, as in the soil water examined by C. Schmidt, from being originally pure (only 448 milligrammes of residue), it rose to 1166 milligrammes, and, in one instance, to nine times the original amount. This increase, however, he remarks, is not so much due to the introduction of new material as to an increase of a part of those substances which are naturally present in rain water. The depth of a spring, of course, exerts a great influence on its purity; and, although the presence of fissures communicating with the surface will render the deepest well impure, as a rule, a depth of 100 feet secures against contamination. The best waters come from the red sandstone, sand and chalk formations, because they are porous, and contain much air in their pores, thus facilitating oxidation. The numerous investigations of Frankland, as well as a large number of analyses made in Germany, by Wibel and others, show conclusively the almost constant contamination of well water drawn from shallow surface wells, varying in depth from

twelve to thirty feet; and it is not surprising to know that the London wells of this nature are the very worst that have been examined. A curious point has been made out from the analyses of wells at Munich, that the amount of contamination is not the same throughout the year, but that it undergoes regular periods of increase and decrease; the residue in one that showed the greatest variation among ten wells, varying from 400 to 24,600 milligrammes, and in the one that showed the least variation from 590 to 860 milligrammes. Sometimes the soda, sometimes the potash salts are in excess, but since 1868 the soda salts have been uniformly in excess. It has been shown that these remarkable differences do not bear a constant ratio to the rainfall, and further investigations are needed to explain it. In his remarks on river water, Dr. Sander again has to take English rivers as a type of all that is bad, and signalizes the Irewell, at Manchester, as one of the worst. This river, which is about forty yards wide, contains at its source seventy-eight millionths of solid residue; below Manchester it contains 558 millionths, putrefies and ferments in summer, and is so bad that it contains no animal life.

On Summer Ventilation.

Dr. W. C. Van Bibber, of Baltimore, Md., writes, in *The Sanitarian*, April, 1878:—

One way of ventilating is by opening the windows and doors in the proper way and at the proper times. It would seem too tediously minute to give further directions here, but the word proper has an extended significance in this connection. This kind of ventilation must be governed by the principles which have already been given, and also by common sense, as well as by comfort and existing circumstances. It implies that the drainage around the house is sufficiently good to admit pure air for the purpose. In order to show practically the value of such ventilation, permit me to quote from a letter on this subject: "I will tell you what happened to a neighbor of mine last summer. Mrs. M. had a sick infant, about six months old. My daughter and myself went up one day, to see if we could do them any good. It was in the hottest part of July. The same room serves the family for kitchen, sitting-room, and as sleeping room for the baby. The room was a long, narrow one, extending east and west, with two doors, one north, one south, but not exactly opposite. The cooking-stove was in the northwest corner of the room, the baby cradle in the northeast. One door they kept always shut, the other partially so, for fear the child might catch cold. The poor little thing was panting and gasping for breath, the mother pale and black under the eyes; the air of the room fetid and miasmatic. 'What doctor attends that child?' 'Dr. D. Before him we had Dr. L. Then we tried Dr. H. I think we'll discharge him and call in Dr. N.' 'Mrs. M.,' I answered, 'that child is dying from want of fresh air. Did not the physicians employed suggest that remedy?' 'No, sir, not one; they did nothing but give it physic.' Then I took the husband out on the little porch (for the air inside was making me sick) and told him in plain Anglo-Saxon what I thought of the case and of the restorative effects of fresh air, and why country infants had so much better chance for life in summer than those of a city, etc. He listened with evident attention, and said he would act on it, and a day or two afterward we walked up again and found both doors wide open and the child evidently on the mend. The last time I was there the doors were still open, the child was rosy and hearty, the mother had recovered her good complexion, and all the other children looked gay and hearty."

This every-day occurrence, so graphically described, may be taken as a text for some comments on summer ventilation. If the air from the open doors had passed

over a spot upon which "dish water" and the general waste waters of a family had been thrown for a long time, it would not have been healthy air to be brought into the house when the wind set in the proper direction for this purpose.

In malarious districts it is well known that a piece of woods, or other obstructions to the air coming from a certain place, as a swamp or pond, has an appreciably good effect in preventing malariazation. It is well to have a good weather-vane in such regions, and to watch the direction of the wind and act accordingly. Close up the house on one side, and keep it open on others. "To purify the air by fire," is a common expression, and one found by experience to be of great benefit in practice, when judiciously managed. The beneficial effect of fire may be to dry the air, since moist air is more likely to contain poisons.

In summer ventilation the art of cooling houses should not be neglected. Many contrivances for this purpose may be found. I believe that a house built double, *i. e.*, with an air wall; or a house within a house; or, to express it in another way, a house with a ventilating shell over it, would, if properly constructed, make a residence cooler in summer and warmer in winter. The air in the air-wall would be kept in a current from below upward by the heat of the sun on the roof in the summer, and the force of this current might be assisted by bull's eyes of glass, or other contrivances of glass, properly arranged in the shell. This may be a valuable suggestion for many kinds of houses, both in towns and throughout the country.

IV. ANIMAL AND VEGETABLE PARASITES.

Echinococcus of the Heart.

In the London *Medical Record*, January 15th, the following case is given, from Dr. C. METTENHEIMER:—

S., aged 35, a soldier, was admitted into hospital during the Franco-German war, with pneumonia, from which he recovered; he afterward showed symptoms of cerebral mischief, epileptic convulsions and mania; no note was made of anything abnormal about the heart. He died, and post-mortem examination showed the following conditions in the heart: There was adipose development in the course of the coronary arteries; both cavities of the heart were empty. In the muscular wall of the left ventricle there was a cyst as large as a pea, containing gelatinous matter enclosing an echinococcus; more careful research discovered two more in the same locality, and one in a trabecula of the right ventricle. Minute investigation failed to find any in the other organs. These hydatids were not acephalocysts; hooklets and suckers were easily demonstrated.

Hæmatozoa in China.

Dr. PATRICK MANSON, the Customs medical officer at the port of Amoy, has, says the *Lancet*, December 1, 1877, contributed a very interesting report on this subject. The prevalence of entozoa among dogs in China is well known, and Dr. Manson describes five species occupying the alimentary canal—viz., two kinds of tænia, a thread worm inhabiting the small intestine, and two round worms like the human lumbricus. In addition to these is the heart worm, variously named Filaria canis cordis, Filaria inimitis, and a new species, not hitherto described as existing

a the dog in China, the Filaria sanguinolenta. The Filaria inimitis is said to exist in bout one-half of all the dogs in China, whether native or foreign, and any one can atisfy himself on this point by microscopic examination, with a low power, of the lood of the animals. A table of 40 specimens examined is given, the results of hich show that 19 out of the number were affected, five of these very abundantly. As many as five of these creatures are sometimes seen in one small field of the nicroscope; but it appears that many of the dogs thus infested "seem," according o the report, "in no way inconvenienced by their guests, have attained a good old ge, and are fat and well nourished." If a dog is killed or dies, the parents of hese microscopic filariæ are found coiled up in the right ventricle of the heart, ometimes extending through the biscuspid valve into the auricle, and even into the uperior vena cava, and very generally through the semilunar valves far into the ulmonary artery and its branches. Sometimes three or four only are found, whereas in other cases the heart and pulmonary artery are actually stuffed with hem. The largest number counted by Dr. Manson was 41, and in this instance some, as he reports, probably escaped detection. On unraveling the ball in which they are encased, the female is found to be the larger of the two, measuring from eight to thirteen inches in length by one-thirtieth of an inch in diameter, the male being five to seven inches long, with a diameter of one-fortieth of an inch. The general proportion is one male to two females. The author describes minutely the anatomy of the worm, and observes that, as animals affected with them are invariably short-winded, sportsmen, before purchasing dogs in China, should have their blood examined microscopically by a competent person. The Filaria sanguinolenta seems to be equally prevalent, inasmuch as out of 13 dogs examined by the reporter, 9 contained the living animal in different stages of development. The author is at variance with Dr. Lewis as to the condition of the embryo, and its differential diagnosis with the Filaria inimitis. The habitat of the Filaria sanguinolenta appear to be the walls of the aorta, the walls of the œsophagus, the loose cellular tissue in front of the latter, and the pleura; never elsewhere. The mature female worm is from three to four inches in length by about one-tenth of an inch in breadth; whereas the male is about an inch shorter, and can be distinguished by a simple incurvation of the tail. This variety of the filaria is oviparous, whereas the Filaria inimitis is viviparous. The physical characters of each are sufficient to distinguish them. Thus the Filaria inimitis is in color milky-white, in length never under six inches, viviparous, and having the venous system as its habitat. The Filaria sanguinolenta is reddish-pink, never over four inches in length, oviparous, and having as its habitat the arterial system and alimentary canal. The diseases produced by the latter variety are, according to Dr. Manson, stricture of the œsophagus, pleurisy, and paralysis of the hind legs.

Symptoms of Ascaris Lumbricoides.

Dr. E. B. Boddy has a useful article on this subject in the *Medical Press and Circular*, April 13th, 1878. He says:—

The symptoms are also sometimes so grave and so variable that many are apt to confound them with those which are entirely dependent on diseases dangerous and incurable; for I have known some cases present such curious and varied phases, so many conflicting and deceptive symptoms, as almost to defy a correct diagnosis; and I think more especially so in the female sex, of about or beyond the age of puberty, for then we are very nearly certain to have some uterine complication, or a

hysterical tendency which is aggravated by the irritation resulting from these parasites, with which we have to deal, besides the weak state of the health, which is generally present in intestinal parasitical irritation.

Indeed, in infancy, the symptoms are, as a rule, variable, for some may suddenly disappear to give place to others equally ephemeral, so that sometimes it is next to impossible to determine from what the child is really suffering; for one day there may be symptoms simulating to a marked degree some lung affection; next day, perhaps, the child is in a high state of fever, accompanied with cerebral excitement, with the temperature up to 104°; then, most likely, by the third day, all the symptoms have passed off and the child may appear tolerably well; on the fourth day the case is equally perplexing, for some symptoms, perhaps, have cropped up entirely different, pointing, may be, to some other derangement.

Most likely we can gather no history of worms, for these parasites hold on to their intestinal habitation very tenaciously, and then, owing to the contradictory symptoms the case is considered as of an intricate nature, and, consequently, no anthelmintic is administered until the ejection of a worm, by an effort of Nature, suddenly opens our eyes as to the real state of affairs.

I remember one very remarkable case which was admitted into one of the London hospitals, and which is aptly illustrative of these deceptive symptoms. The patient was a girl of about 13 years old, emaciated and weak; she had a continual, dry, hacking cough, both night and day; the appetite was variable, though sometimes she would eat ravenously; at night time she was exceedingly restless and excitable and in a high state of fever. The catamenia had not appeared. The case was diagnosed as commencing phthisis, though no abnormal sounds could be detected on auscultation, nor could any lesion be discovered by palpation. For a fortnight she was under treatment, the cough continuing as bad as ever, though she very much improved in physique and gained flesh rapidly. At the end of a fortnight two large round worms were passed, with much straining; the cough now decidedly improved, and the child got better, and was soon after discharged.

This case was diagnosed, by one whose diagnostic skill it would have been presumption to question, to be incipient or commencing phthisis; and I remember he evinced no little surprise at the speedy recovery of the patient after the expulsion of the worms, and at the rapidity with which the cough subsequently ceased.

This case, to my mind, is highly instructive, for it shows how the skill of an expert physician may be completely baffled by these parasites. There is not the slightest doubt but that the worms were expelled solely by an effort of nature, for no anthelmintic was administered, and the case was treated as incipient phthisis is generally treated; when the child had a slight attack of diarrhœa, an astringent was administered immediately; however, the worms were ejected, and the child improved. We may, with a certain degree of justice, presume that there were other worms in the intestinal canal; but one thing is certain, the worms were the originators of the supposed phthisis, and the cough was, no doubt, gastric, and not pulmonic, for the lungs were diagnosed to be healthy by one who was fully competent to decide, though he asserted that, owing to the incessant cough, the case was one of incipient phthisis.

Another peculiar case came under my observation not long ago, of a similar nature, but it was complicated with a rash simulating that resulting from scarlatina simplex; so much so, that I was somewhat inclined at first to consider it as such, and treated it accordingly; the rash soon disappeared, but the dry, hacking cough, foul tongue,

and high temperature, accompanied with irregularity of the bowels, still continued, and the fever, instead of abating, increased, and the symptoms gradually assumed a typhoid character; at last the child vomited up a large round worm, and immediately experienced marked relief from its expulsion. I now changed my plan of treatment in toto, for I came at once to the conclusion that as one worm had been ejected, others might be in the intestines; I accordingly gave the child every night a powder, consisting of equal proportions of calomel and santonin, followed the next morning by castor oil; in three days sixteen round worms of various sizes were passed per anum. The child now speedily recovered its previous health, the rash disappeared as rapidly as it appeared, and the cough left just as quickly.

This case is extremely interesting, as it exemplifies in a most remarkable manner the various deceptive symptoms devolving upon intestinal parasitic irritation, for there was the cough simulating that which is invariably present when the lungs are beginning to be consolidated by the formation and deposit of tubercles; there was the rash very similar to that which is present in scarlatina simplex, and there was the foul, parched tongue, rapid pulse, hot and dry skin, high temperature, irregularity of the secretions, and nocturnal delirium. Now all these symptoms were what I call deceptive, for they pointed almost conclusively to certain diseases which were not present, and were simply dependent upon the irritation set up by these intestinal parasites.

Another case came under my observation, with symptoms closely analogous to those indicative of acute hydrocephalus, with this difference—the pupils were of normal size, no worm had been detected in the excreta (on this point, I may say, the mother was most emphatic), so I had absolutely nothing to guide me in my diagnosis, save symptoms which, had I regarded, would have led me into error; but, bearing in mind, however, those cases which had previously came under my notice, I gave the child some calomel and santonin, and by next morning four round worms had been passed; a few more powders of the same kind speedily removed the acute hydrocephalic symptoms, and the child rapidly recovered.

In other cases the symptoms were ambiguous and changeable, some of them assuming various phases daily, so that I could not arrive at any decided diagnosis, but the administration of calomel and santonin very soon elucidated what I may call the delusive phenomena of intestinal parasitical irritation.

Though these parasites are more frequently found in children, yet I have, nevertheless, known them give rise to such curious symptoms in the adult as to completely perplex the most skillful; sometimes they are similar to those arising from hysteria, and they have also simulated those to which dyspepsia gives origin: the most distressing nausea and headache are also caused by these worms, the presence of them being unknown, because none have been observed in the ejecta, and, therefore, no treatment is of benefit, save the administration of an anthelmintic and a purgative. Frequently, on being consulted by patients suffering from extreme debility and lowness of spirits, I have discovered that nothing save the irritation set up by these parasites originated the deceptive symptoms and their distressing sensations.

Helminthological Work in 1877.

The *Lancet* gives the following summary:—

Helminthology continues to advance, throwing unexpected light on the pathology and etiology of many obscure affections. A striking instance of this is seen in Dr. Normand's discovery of the cause of the Cochin-China diarrhœa. The parasites

concerned are two nematode worms (Anguillula stercoralis and A. intestinalis). An account of their structure and peculiarities forms the substance of several contributions by Professor Bavay, M. Laveran, and the discoverer himself (*Comptes Rendus*, February, 1877, p. 266; *Archives de Méd. Navale*, January, 1877, p. 35; *Gaz. Hebdom. de Méd.*, January and February, 1877). It will afford some idea of the prolific character of these minute worms when we note the fact that in bad cases an examination of the fæces showed that hundreds of thousands of the little worms were evacuated every twenty-four hours. According to M. Bavay, only five days are necessary for the full growth and maturation of Anguillula stercoralis. Of yet higher interest, perhaps, are the discoveries of Lewis and Bancroft, recorded in our own pages. Apart from the intrinsic merit of the "finds," they throw light upon previous records and observations. By a singular coincidence, Lewis and Cobbold almost simultaneously described the adult representative of the Filarias anguinis hominis in our columns; but Dr. Cobbold had anticipated Dr. Lewis by announcing Bancroft's discovery in a letter addressed to ourselves. Dr. Cobbold named the parasite Filaria Bancrofti. It was not unnatural that Dr. Lewis should refuse to adopt the new nomenclature; yet it is both curious and instructive to notice that, while our distinguished correspondent, writing from Calcutta, takes Dr. Cobbold somewhat to task for associating Bancroft's name with the adult entozoon, another eminent pathologist, writing in the *Gazeta Medica da Bahia*, is also rather severe on Dr. Cobbold for not associating Wücherer's name with it. We here allude to a paper by Dr. Da Silva Lima (who lately contributed specimens of Anchylostoma duodenale to the Hunterian Museum). Dr. Lima's Portuguese memoir has been reproduced in the last number of the *Archives de Médecine Navale*, and contains an important appendix by M. Le Roy de Méricourt, in which he defends "le savant helminthologiste anglais" from the Bahia physician's reflections. The memoir reproduces the illustration Dr. Cobbold gave of Filaria Bancrofti, and is entitled "Nouvelle Phase de la Question à la Nature Parasitaire de la Chylurie; Dévouverte du Représentant Adulte de la Filaire de Wücherer." It is evident that we have not yet heard the last of this parasite, either in its relation to disease or scientific controversy.

As regards parasites in animals, a great variety of species have turned up. We can only allude to one or two of them. The most remarkable is the new equine fluke found by Dr. Sonsino, of Zagazig, in some of the horses that perished of the Egyptian plague (Gastrodiscus Sonsinoii, Cobbold). This singular worm has the entire ventral surface converted into a large oval sucker, and within its concavity there are about two hundred small supplementary suckers. Its appearance is altogether unique (the *Veterinarian*, April, 1877). The September number of our contemporary also contains an account, by Dr. Cobbold, of a new form of psorosperm found within the mitral valve of a horse. Professor Edward Perroncito has contributed some interesting researches illustrative of the tenacity of life possessed by beef and pork measles (*Osserv. Gazetta delle Cliniche di Torino*, vol. i, 1877). Dr. Ragni and several students submitted themselves to experimentation, and one of the "courageous young men" succeeded in infecting himself with Tænia mediocanellata. The only other novelty in connection with comparative pathology that we can afford to notice is Dr. Osler's discovery that a form of bronchitis, affecting dogs, is due to the presence of worms (Strongylus canis bronchialis, Osler). It is of especial interest in relation to the etiology of similar epizootics affecting cattle, sheep, and other animals, both wild and domesticated.

CLINICAL MEDICINE.

I. GENERAL AND CONSTITUTIONAL DISEASES.

The Nature, Diagnosis and Treatment of Hydrophobia.

On this subject very much has appeared in English journals within the past year. The following is stated by Mr. RICHARD POTTER (*Lancet*, November 24th, 1877), as about all which has been settled absolutely regarding it:—

1st. That it can be always traced, in other creatures, to have been received from some animal of the canine race—dog, fox, or wolf.

2d. That no certain cure has hitherto been found for the bite of a rabid dog, except immediate excision of the bitten part, or the application of the actual cautery.

3d. That the slaver of a dog not known to be rabid, applied to the tender part of the skin, has produced hydrophobia without the skin being pierced. There is the lamentable instance of Sir Peregrine Maitland to be remembered, who, having risen to honor and power through the dangers of a brave soldier's life, died of hydrophobia, when Governor General of Canada, from having allowed one of Lady Maitland's dogs to lick his chin after shaving.

4th. That dread of the sight of liquids, so characteristic of the disease in mankind, is not a test of rabidity in animals.

5th. That the disease is due to a specific poison received into the system, which produces peculiar and characteristic effects.

6th. That there is always diseased action of the mucous membrane of the mouth, fauces, pharynx, or œsophagus, in all creatures afflicted with the complaint.

This last consideration should evidently guide us in our search for remedies, and secondary symptoms, however prominent and various in different individuals, ought not to divert our attention from the primary agencies of the disease.

When I was a medical student at St. Bartholomew's Hospital, about thirty-seven years ago, there was a case of fatal hydrophobia in one of the surgical wards. The patient was a fine, healthy boy, or rather a growing youth, who had been bitten on the forehead by a dog not long before the symptoms of hydrophobia appeared. I was present at the time of his death, during a severe convulsion brought on by the sight of a glass of water. The father consented to a post-mortem examination being made, on the condition that he was allowed to be present at it. The examination was made most completely, by a skillful and learned anatomist. The spinal cord, the brain, the contents of the abdomen and chest appeared perfectly healthy, not showing the slightest symptoms of disease. I had taken chemical test papers with me, to try the acidity or alkalinity of the fluids or semi-fluids of the body, but found all I examined to be neutral. The tongue, pharynx and œsophagus were next removed from the body, and, on the pharynx and œsophagus being slit open, the cause of death became evident in the severe ulcerations of the lining mucous membrane of the œsophagus, from one end to the other. These ulcerations lying so contiguous to the ganglia of the sympathetic nerves, on each side of the spine, there is no need to be surprised at the severe spasms and convulsions which

are so characteristic of this disease in the human subject. The ulcerations were of a whitish color, in roundish patches, and in appearance the same as the aphthæ of the mucous membrane of the mouth in the disease called thrush.

In thinking of remedies, the difficulty of access to the ulcerations becomes most evident. In the mouth the aphthæ can be touched with lunar caustic, and will generally soon heal; but even a sponge at the end of a flexible strip of whalebone, wetted with a weak solution of nitrate of silver, on being passed down the œsophagus, might immediately kill the patient. Astringent alum gargles, or a piece of alum crystal in the mouth, to be sucked, will generally cure ordinary thrush of the mouth. My opinion is, that, on the first appearance of hydrophobic symptoms, teaspoonfuls of saturated alum solution should be given to the patient, to be swallowed at intervals of five minutes until all the usual indications of the disease disappear. Beef tea or fat broth should be given as food, after taking the alum, while milk, at first, should be avoided.

The *Medical Press and Circular*, January, 1878, has published the following table of the differences between hydrophobia and tetanus:—

1. Tetanus results from injuries of the most varied character.

2. The effects follow in a very short space of time, a week seldom, if ever, elapsing between the injury and the development of the symptoms; while the shortest interval between the bite and the first symptom of rabies was 12 days, the longest 334 days, and the average 61 days 18 hours, in the 120 cases collected by Dr. Holland.

3. That anxiety, horror, dyspnœa, or convulsions at the sight of fluids form no part of the symptoms included under the term tetanus.

4. That in tetanus some of the muscles are often in a state of continuous rigidity, and that the convulsions occur at much shorter intervals than in cases of rabies.

5. That delirium is a very rare symptom in tetanus, and a frequent one in rabies, occurring 80 times in 120 cases.

6. That in tetanus the secretion of saliva is seldom increased.

7. That in tetanus the muscles of the lower jaw are frequently in a state of continued tension.

8. Opisthotonos or emprosthotonos often terminates the case.

9. As Fleming remarks, physiologically, while tetanus is a disease of the true spinal system of nerves, rabies involves the brain also, as evinced by the disorder of intellectual function and special sense, even early in the disease.

Œsophagitis may, according to the same writer, present some difficulties. He gives the following differential table, from Holland, to point out the essential points of difference:—

In Œsophagitis.	*In Rabies.*
1. Pain in the pharynx, throat, or along the spine, occurs as the earliest and invariable symptom.	1. Pain in the pharynx, throat, and along the spine, occurred in 42 out of 120 cases, or about once in every three cases, and not as the earliest symptom.
2. The attempt at swallowing solid food causes intense pain, and in aggravated cases swallowing of even fluids is accompanied by pain, or may be totally impossible.	2. The attempts to swallow fluids, though not generally accompanied by intense pain, causes dyspnœa, convulsions, etc., while solids can be, in most cases, taken with comparative facility.

3. Horror of fluids reported to have curred in but one case.

4. The amount of difficulty in swallowg is in direct proportion to the extent nd intensity of the pathological appearnces found in the œsophagus.

5. Saliva abundantly secreted, expectoation difficult, and the time of the occurence of these phenomena is not fixed.

6. Urgent thirst in, perhaps, all cases.

7. Average duration of the disease, even days.

8. Generally terminating in recovery.

9. Death caused by œdema of the glottis, gangrene, or rupture of the œsophagus.

3. Horror of fluid the most prominent symptom in 119 out of 120 cases.

4. No direct relation exists between the pathological state of the œsophagus, as shown after death, and the intensity of the dysphagia.

5. Saliva secreted in great quantity, often flowing spontaneously from the mouth, and these symptoms always occurring among the last phenomena.

6. Thirst was urgent in about one-third of the cases.

7. Average duration, seventy hours and forty-eight minutes, or nearly three days.

8. Invariably terminating fatally.

9. Death most probably resulting from asphyxia, coma, or collapse; no case on record in which it was caused by either œdema of the glottis, gangrene, or rupture of œsophagus.

Fleming assures us it is not possible to mistake rabies for any other malady, or to doubt its existence when present; for if, during the stage of incubation, doubts and fears may exist, all uncertainty comes to an end when the disease really appears. The muscular debility complained of in many cases, the restless sleep out of which the patient starts up, his continual fidgetiness, his suspicious breathing, his sadness, and thirst after pleasure, and then his love of solitude, must awaken terrible fears in the physician; especially if there be no moral causes or organic lesions to satisfactorily account for these symptoms. The intense thirst, and general muscular pains and rigors, which might at first be ascribed to some grave febrile affection, are followed by a symptom that is almost pathognomonic of rabies, namely, a sudden difficulty in swallowing liquids, water in particular. When there is complete inability to drink, and when this dysphagia is immediately succeeded by tremor, on the patient carrying some liquid to his lips, all illusion is dispelled, and it becomes clear that he is under the fatal influence of the virus of rabies.

The following case, suggesting the value of sialogogues, is from the *British Medical Journal*, November 17th, 1877, reported by Dr. R. E. POWER:—

A lady, in defending her pet dog from the attack of a cat (rearing young ones), was bitten in the hand, through her glove, a portion of the glove being driven into the wound. This occurred on Saturday afternoon at four o'clock. At the time, except the immediate slight pain, nothing was thought of the occurrence. By evening, however, the pain increased, with throbbing, which extended up the arm to the shoulder. She had some sleep through the night, and even fancied it was bett r next morning, so that she set out, as usual, for morning service. On her way to church she suddenly felt ill, and found herself forced to return home, calling on a medical friend on her way back, who, forming a very grave prognosis, and feeling surgical intervention now (twenty hours after receipt of injury) almost useless,

applied lunar caustic to the wound and over the forearm, giving directions to take liberal diet, including alcohol. By evening the pain and swelling had increased alarmingly, and at 8 P. M., twenty-eight hours after the bite, the first symptoms of trismus declared themselves, or, as the patient expressed it, she felt as if two iron clamps had seized her jaws. This lasted about an hour, when salivation set in, giving her immediate relief, so that she slept through the night. On waking, she found her bed literally soaked through with saliva. Shortly after, a return of the locked jaw took place, lasting now only about ten minutes, when, with a recurrence of the salivation, it relaxed. This alternating condition—short tetanic spasms with profuse salivation—lasted for three days, the flow of saliva being so great as to saturate a sheet in a few minutes, and compelling the patient to sit up with her head over a basin. During all this time, of salivation, the appetite was ravenous, constituting almost an acute bulimia, six mutton chops forming the flesh portion of a day's diet, with a bottle of claret and two bottles of ale; yet, withal, a sensation of starvation not to be appeased. On the fifth day all the symptoms gradually abated, and by the end of ten days the patient was out and felt as well as ever. Since this, although several years have elasped, any scratch or wound, however slight, gives a "starchy feeling" in the jaws, which is instantaneously relieved by a glass of brandy and water, or any equivalent alcoholic stimulant.

The Treatment of Delirium Tremens.

Mr. S H. HARRIS, of Madras, writes, in the *Lancet*, January 12th :—

Much has been said respecting the management and the various remedies used in cases of delirium tremens, each individual promulgating the advantageous results of his own experience, so much so that authors are at variance as to the best course to be adopted in such cases, some recommending (as the results of their own success) a certain regimen combined with ordinary attention to the secretions and excretions; others advocating, in addition to the aforesaid, narcotics and sedatives; while a third party resort to the heroic effects of the so-called specifics, such as capsicum, digitalis, etc. In commenting separately on the special advantages of each course, I would state, in reference to the first mentioned, that where the case is of a mild form, and where due attention is paid to the management of the patient, he may go on well. In regard to the second, or the administration of narcotics, as opium, chloroform etc., I cannot too forcibly deprecate the use of such remedies, even in the most diminutive doses, more especially in hot climates, as I have seen the most dire results follow their exhibition, the patient dying of convulsions and coma, the pupil exhibiting the well marked pinhole contraction, as observed in cases of narcotic poisoning.

Of the third, or specific form of treatment, there is no doubt a great deal to be said in favor of capsicum and digitalis. These, when properly administered, are most valuable remedies, the latter having a twofold effect in regulating and subduing the action of the heart, and thereby proving useful as a vascular sedative, in addition to its powerful diuretic properties; and as there is almost always well-marked congestion of the liver and spleen in such cases, which in hot climates has a very strong tendency to induce hæmatemesis, this remedy is most effective in averting the latter, and in combination with its diuretic action is, I think, most valuable in aiding the elimination of the morbid poison by the kidneys. However, as in the case of narcotics, the physician cannot be too cautious in the administration of this valuable medicine, always remembering its specific and cumulative

action on the heart. After first effectually relieving the bowels, I am frequently in the habit of prescribing half drachm doses of tincture of digitalis, with fifteen or twenty minims of the acetum scillæ, with most excellent results, the dose being repeated every second, third, or fourth hour, as the case requires, the action of the heart being my guide, in every case, as to the frequency of the dose, the attendant also being cautiously instructed to keep the patient quiet and in a recumbent posture. The above treatment was, I believe, originally introduced by Dr. Banks, of Dublin.

Capsicum has also had many eminent members of the profession to advocate its use, and recently its valuable effects have been more commented on, and I think it is becoming more generally used than formerly as a remedy in such cases. The more appreciable advantages of capsicum are, that it seems to allay that craving desire of the patient for alcoholic drink, and has a tendency to settle the stomach, which thereby tends to favor the assimilation of food into the system, which is so essential. It also acts as a powerful stimulant to the whole system. The powder is the most favorite form for administration, and is given in large and frequently repeated doses of from twenty grains to a half a drachm, in bolus, with honey. The tincture is also frequently prescribed in mixture or draught. The advantages of this last remedy over the two former are very obvious, as it is not accompanied by any direct injurious action to the functions of the brain or heat, and its speedy effects are often developed in a most remarkable degree; so much so that frequently, after a few doses of the powder, the patient becomes quite coherent, and takes his nourishment with apparent relish, and continues to make a rapid and good recovery.

In summing up, therefore, the relative advantages of each course of treatment, I am of opinion that if success continues to attend the administration of capsicum, it is likely, on substantial grounds, to supersede any of the other remedies heretofore introduced.

The Diagnosis of Alcoholic Coma.

This important subject is discussed as follows, in the *Lancet*, December 22d, 1877, by Dr. JOHN CURNOW, Professor of Anatomy, King's College, London:—

Cases of cerebral apoplexy are continually being mistaken for alcoholic coma, and *vice versâ*. Those due to embolism are so sudden, the coma, if there be any, passes off so soon, and the hemiplegia is so complete, that an error can scarcely be committed. Those due to thrombosis also present so marked paralytic symptoms, and so little and so transient a coma, that they may also be dismissed from our consideration. The difficulty arises in cases of hemorrhage into the brain. The diagnosis is uncertain in the two degrees of drunkenness, viz., in the stage of complete coma, and in the noisy and uproarious stage. It is extremely difficult to diagnose complete alcoholic coma from that due to cerebral hemorrhage, especially if the latter be into the pons or into the lateral ventricles. In ordinary cases of apoplexy there is some evidence of one-sided paralysis of the limbs or face; convulsions are of greater severity on one side of the body, and there is rigidity or spasm of one limb, or squinting. The pupils are frequently unequal, but I have seen this also in alcoholic coma. Unless we have some such distinctive features of a unilateral lesion in the brain presenting some well-marked unilateral symptom, we cannot come to a positive diagnosis. Two more points are left for observation. The patient's urine may give the alcoholic reaction. A chromic-acid solution (made by dissolving one part of bicromate of potash in 300 parts by weight of strong H_2SO_4) is immediately

turned to a bright emerald green by the addition of alcohol, either pure or contained in urine. This reaction is sudden and immediate, and although other substances oxidize this solution, and produce a similar color, it is scarcely liable to any practical fallacy. Again, the patient may vomit, and the vomited matters may contain a large quantity of alcohol, or none at all, and so explain the nature of the case. The second condition—that of noise and excitement—is the one in which most mistakes are made, for the patient may have a serious and fatal lesion in his brain, and yet be able to struggle, swear, answer questions more or less rationally, put his tongue out, etc., and hence even the most cautious and experienced practitioner may come to the conclusion that he is only drunk. Such an opinion is the more readily formed if the patient's breath smell of alcohol. We must remember that a man with a threatened attack of apoplexy, feeling ill (for such cases are rarely absolutely sudden), may go into a public house, drink some spirit, fall down in a fit, be picked up by a policeman, and taken to a hospital or police station. In this case the breath would give an alcoholic odor, and the circumstantial evidence point to drunkenness, and yet the case be one of severe cerebral hemorrhage. These cases of so-called "ingravescent" or "increasing" apoplexy begin with delirium or a convulsion, then there is partial recovery, with confusion and headache, and after some time (from one or two even up to forty-eight hours) deep and prolonged coma sets in. Extensive hemorrhage is always found, usually bursting through one corpus striatum into the lateral ventricle. Copious meningeal hemorrhage is sometimes attended with a similar succession of symptoms. Again, I must repeat that the general features of the case are not to be relied on for a diagnosis, and such individuals must be carefully watched, otherwise we may find that the patient is "not drunk, but dying," and so get much discredit.

Coma from opium poisoning cannot be readily diagnosed, except by the history. The minute contraction of the pupils is a valuable sign, but I have seen this as marked in alcoholic coma as in opium poisoning, and in cases of hemorrhage into the centre or into both sides of the pons, it is a constant symptom. The stomach pump must be used; for if this be carefully done, no harm results to an apoplectic, and it is far better that it should be resorted to, even in a case of cerebral hemorrhage, than that a patient should die of opium poisoning without proper treatment, owing to a mistake in diagnosis. The smell of opium may guide us to a correct opinion, and in prussic-acid poisoning the odor of the drug is so very characteristic, and the collapse so marked, that no error is likely to be made. In cases of poisoning by other narcotics, the odor of the drug and the history can alone guide us; but in all doubtful cases we must again appeal to the stomach pump. In cases of uræmia, we are also likely to be deceived if we trust to the general appearances of the patient, but an examination of the urine for albumen and renal casts, and of the patient for signs of dropsy or of hypertrophied heart as a consequence of chronic Bright's disease, will put us right. The fallacies here are, that a patient with chronic Bright's disease may also be suffering from alcoholic coma, as happened in a case under my observation; that one or more convulsions may be due to uræmia, or may usher in an attack of alcoholic coma; and that albuminuria may be due to congestion of the kidneys from poisoning by alcohol only. In one case in which coma was induced by the consumption of nearly two quarts of port wine, which were removed from the stomach by the pump, the urine was almost solid with albumen, and this all disappeared in two days. Lastly, we must remember that a patient frequently becomes comatose for a certain length of time after a severe epileptic fit.

I wish, therefore, to insist most strenuously on the difficulty of diagnosis in all cases of coma. The mode of procedure to be followed, in order to arrive at a correct opinion, should be something like the following. In the first place, the patient should be carefully examined for blows on the head or for fractures of the skull; and we should then see if there is any hemiplegia, unilateral spasm, rigidity, or convulsion, and if there is any squinting or facial paralysis. We should next look at the pupils, but not lay much stress thereon. "Conjugate deviation" of the eyes, as if the patient were looking upward, over one or the other shoulder, increased, perhaps, by a rotation of the head and neck in the same direction, is a very important sign of apoplexy, and diagnostic if present. The next step is to inquire for a convulsion, and to examine the tongue and mouth for bites, blood, or froth. After this the urine should be drawn off by a catheter, and tested for albumen and alcohol. The heart must be carefully stethoscoped, and the position of its apex noticed. The legs should be exposed, and we should see whether they pit on pressure, and whether there is any puffiness of the eyelids or general œdema. If we are still in doubt, we must empty the stomach with the stomach-pump, and examine the contents, again remembering that it must be used with especial care, and then no harm will be done to an apoplectic, and we may be led to the proper treatment, if the case is one of poisoning by alcohol, opium, or a narcotic poison.

Too much stress must not be placed on the history, although this must always be asked for. The general features of the attack are of but little significance from a diagnostic point of view, and we must not be misled by such unimportant and equivocal symptoms as the condition of the pupils and the smell of the breath. In the early stages of alcoholic coma, and of coma from cerebral hemorrhage, the temperature is low, but it frequently rises in both to an excessive height before death.

I would add that, in every doubtful case, the patient must be kept under observation; and I am astonished that a small ward is not set apart in all our hospitals for the reception of such cases. As it is, we must either disturb a general ward, filled with the sick and dying, or send the case to the police station, where, perhaps, he may die. A resident medical officer should not be compelled to choose between these alternatives—one laying him open to censure from the hospital authorities, the other leading, perhaps, to a verdict of "manslaughter, from neglect," by a coroner's jury.

II. DISEASES OF THE BRAIN AND NERVOUS SYSTEM.

On an Improved Method of Treating Facial Paralysis.

Dr. WILLIAM A. HAMMOND, Professor of Diseases of the Mind and Nervous System, in the University of the City of New York, writes to the St. Louis *Clinical Record*, May, 1878:—

The winter just past appears to have been marked by an unusually large number of cases of facial paralysis, sixteen instances of the affection having come under my professional care in the four months of December, January, February and March. To what cause, or combination of causes this fact is due, I am not able to determine. It may have been owing to the remarkable mildness of the season, and the consequent neglect to take proper precautions against exposure to drafts or other factors inducing "taking cold." Certainly all the cases above referred to were in persons who had been thus situated.

Facial paralysis, according to my experience, rarely spontaneously disappears entirely, though partial recoveries without treatment are not unfrequently met with. The character of the affection is, however, such, that a partial recovery is not much better than a permanent non-improvement. Distortion on the execution of any facial movement is evident, and hence, especially in women, a source of continual worry exists.

Again, it must be confessed that, even after various kinds of medical treatment, recovery is not always complete. Doubtless this is often due to the late period at which the patient comes under professional care; for in no disease are prompt measures more necessary than in facial paralysis. A few weeks', and sometimes a few days' delay are sufficient to materially diminish the conductivity of the nerve, and the contractility of the paralyzed muscles, besides initiating a state of tonic rigidity in the latter, most prejudicial to the obtainment of a complete cure.

The paralysis of the muscles supplied by the facial nerve, when induced by cold, I have heretofore found to be generally manageable by the use of strychnia, electricity, passive exercise and the support to the affected side of the face given by a little hook placed in the angle of the mouth and fastened to the ear by an elastic band. These measures are by no means to be discarded, and one of them, strychnia, is to be even more energetically employed. The improvement to which I refer, in fact, consists in the administration of strychnia in increasing doses, to the point of rapidly—as rapidly, in fact, as is consistent with prudence—bringing the patient under its full physiological influence.

For this purpose I make use of a solution of the sulphate of strychnia, in the proportion of one grain to the ounce of water. Every ten minims of such a solution contain $\frac{1}{8}$ of a grain of the medicine. Generally I begin with ten minims of this solution three times a day, for the first day; the next day eleven minims are given three times; the next twelve, and so on, till the patient experiences a sensation of cramp or rigidity in the legs, or in the muscles of the back of the neck or of the jaw. Usually the cramp is first felt in the calves of the legs. The further administration is now stopped, and, if necessary, on the following day the solution is given as before, in doses of ten minims, and the doses are again run up to the extent of producing the muscular cramp. As illustrative of the action of this method, I cite the following cases from my note-book, premising that they are the worst of the sixteen on which this paper is based:—

Case 1.—Miss S., in coming from Newark to New York, on the evening of January 5, 1878, opened the car window over the seat on which she sat. She experienced no inconvenience till the following morning, when, on awaking, she found that the left side of the face was paralyzed. On the 7th she came under my observation. Examination showed that not only were all the muscles of the face supplied by the facial nerve paralyzed, but that there was a diminution of the sense of taste on the side of the tongue corresponding to the paralyzed side of the face, that the left palatine arch was straighter and lower than the right, and that the uvula was concave toward the paralyzed side, while this organ and the velum were drawn over toward the sound side. These phenomena indicated that the lesion or morbid process was situated behind the gangliform enlargement. There was a little pain in the ear, but the hearing on that side, instead of being morbidly acute, as is sometimes the case, was markedly diminished.

The muscles of the affected side responded moderately well to the faradic stimulus, but the paralysis of voluntary motion was, nevertheless, very profound.

I at once began the administration of the strychnia, according to the formula just given, placed the hook in the angle of the mouth on the left side, and advised the use of the faradic current for a few minutes every alternate day. On the tenth day, while taking $\frac{1}{4}$ of a grain of the strychnia, she felt a little rigidity of the muscles of the calves of the legs. It was so slight, however, that I advised the continuance of the increasing doses. But even now the improvement was evident. She could close the eye of the affected side, elevate and corrugate the brows, and slightly retract the angle of the mouth. When she laughed, however, the right angle of the mouth was retracted much further than the left.

But soon after taking the third dose of twenty-one minims, on the following day, she experienced very decided cramps in both legs, which, however, passed off in less than half an hour. On the next morning I saw her. The action of the facial muscles was, so far as I could see, equal on both sides. There was certainly no distortion on the execution of any retracting movement, and (a severe test) she could alternately open and shut the eyes, and close the left without closing the right. I therefore dismissed her, cured. There has been no relapse.

CASE 2.—Mrs. L., after driving home late at night in an open carriage, woke next morning with the right side of her face paralyzed. There was a good deal of pain in the vicinity of the facial nerve in front of the ear, and some little swelling of the part. I did not see her till January 8th, five days after the inception of the paralysis. At this time the swelling and tenderness had disappeared, and the case was one presenting the ordinary features of facial paralysis with the lesion anterior to the stylo-mastoid foramen, with the notable difference that, although only four days had elasped, the electric excitability of the muscles was entirely abolished to the strongest faradic current I could obtain from a new ten-cell machine of great power. It was only by using the galvanic current from fifty of Hill's cells that I obtained full muscular contractions, though twelve cells caused slight movements.

I began the treatment with the galvanic current from twenty-five cells, which I applied, slowly interrupted, for five minutes, so as to make every individual muscle contract two or three times a least. This was to be repeated every alternate day. The solution of sulphate of strychnia (already mentioned) was prescribed, but with directions to increase the doses by two drops instead of one. On the fourth day of this treatment the patient could close the eye well and could slightly retract the angle of the mouth. On the fifth day she could raise and corrugate the brows, the food no longer collected between the gums and the cheek on the paralyzed side, and the other movements were much more decided than on the previous day. She was now taking eighteen minims of the solution three times a day. On the seventh day, shortly after taking the third dose of twenty-two minims, she was seized with strong cramp in the calves of both legs. There was no other disturbance, and she was not at all alarmed, as I had warned her of what would probably happen. She went to bed shortly afterward (the cramps ceasing in a few minutes) and slept soundly all night. The next morning she was free from paralysis, there not being the least distortion of the face, no matter what movements were made. She was yet, however, unable to close the eyes alternately, but she gained this power on the following day. Treatment was discontinued and she has remained well since.

These cases are fair types of the others. Indeed, they were among the worst, for no other case was as long under treatment as the first of these two, and in no other was the electric excitability of the muscles so greatly impaired as in the second of these cases. I think, therefore, that the practice referred to is worthy of further trial.

On "Kopfdruck," or Irritability of the Brain.

Dr. W. W. IRELAND says, in the *Journal of Mental Science*, January, 1878:—

Dr. F. Runge, of Nassau, has, in the *Archiv. für Psychiatrie*, v. Band, 3 Heft, a valuable article upon Kopfdruck, or, as we might call it, constriction or tightness in the head. When resulting from wounds or injuries to the head, this affection has been described by surgeons under the term "irritability of the brain." It is a very distinct disease, and I always thought it very rare. Dr. Runge, however, has collected as many as two hundred instances of it. The principal symptoms are a feeling of tightness, and, in severe cases, of weight in the head. A tight neckcloth, or even tight clothes, feel disagreeable. It is often combined with swimming in the head, or a feeling that consciousness will soon pass away. Headache was observed in twenty per cent. of the cases studied. The mental symptoms are very distressing, but do not generally amount to insanity. The intellect *per se*, in most cases, is unaffected; the understanding, memory, imagination and other mental faculties seem unimpaired, but the power of hard work is much injured. To use Dr. Runge's description, as soon as the patient has carried on his office work for a short time the feeling of tightness in the head commences, or the pain, where this is a symptom, begins to arise. There is an increasing difficulty to keep the attention upon one object. The patient glances over a page without retaining a word, and a feeling of distress steadily increases till it compels him to stop his work. In bad cases every forced mental exertion brings on an exacerbation of the malady. Where the disease is less severe, continued work is difficult, though a good deal may be done by passing from one kind of work to another. Where insanity appears it takes the form of melancholia. Hypochondria is said to be common. In some cases there is sleeplessness, but sometimes there is a greater tendency to sleep. The muscular power is also injured. The patient is easily fatigued, and needs to rest a little every now and then. In six per cent. of Dr. Runge's cases agoraphobia was noticed—that is, a feeling of anguish which comes over people when crossing large squares or open spaces. One of the commonest causes of this condition is chronic inflammation of the internal ear, or of the nasal and temporal sinuses. Sometimes it is caused by wounds in the head. In some cases it seems dependent upon affections of the bowels and uterine disease. It often lasts a long time, sometimes many years; nevertheless, the author thinks the prognosis not unfavorable. Most cases recover if properly treated. Dr. Runge has seen complete recovery after the disease had lasted above five years with bad relapses, and has seen enduring improvement where the disease had lasted above twenty years with temporary exacerbations and remissions. After it has lasted eight years a complete recovery is rare, though improvement is likely enough to take place.

There have been no opportunities of finding out the changes induced by this disease after death, since it is rarely, if ever, mortal. Dr. Runge thinks that the fact that the patient can pass from ease to extreme distress in a few minutes indicates some rapid change in the vessels, probably slowness of circulation in the capillaries, owing to deficient vaso-motor innervation. He thinks that pressure may exist upon the vessels at the foramina of the skull, which, acting upon the accompanying nerves, may cause the feeling of constriction.

The treatment he recommends is rest of the affected organ, rest from mental exertion, and freedom from disquietude. The patient should lead a quiet and idle life for two or three months. Change of air and scene are useful, though sometimes the annoyances and discomforts of traveling do harm; but Dr. Runge has

found residence in high situations, as in some health resorts of Switzerland, to be contraindicated. The diet should be non-stimulating; wine, beer, and condiments should be abstained from; and the author has known cases where two or three cups of strong coffee brought back the distress for a week at a time. Dr. Runge says that many of the vegetarians whom he had met had suffered from kopfdruck, and preferred an unstimulating diet, because it relieved their malady.

The uterine disorder is sometimes successfully treated without the irritability of the brain passing away

The author recommends cold baths to the legs and lower part of the body, which, he thinks, have a more permanent action in calling blood to the surface than hot baths. He observes that parts exposed to the cold are habitually red. He does not recommend cold baths applied to the head, but sometimes uses bromide of potassium where there is a tendency to melancholia. He has tried electricity, but in only one case did he find it successful. This was an officer who was wounded in the parietal bone, and suffered very much from dull headaches, giddiness and distress in pursuing his usual employment. The constant current was applied to the cicatrix of the wound; the headache almost immediately passed away, and after eight days he entirely recovered.

The Forms and Excitants of Vertigo.

At a meeting of the Medical Society of London, in December, 1877, Dr. WOAKES read a paper on the Connection between Stomachic and Labyrinthine Vertigo, in which he drew attention to a form of vertigo different somewhat from that known as Menière's disease. In this form the attack is sudden, without loss of consciousness, but also without any notable disturbance of the auditory organs. Dr. Woakes then referred to the vascular supply on the internal ear, this being from the vertebral artery, and the connection of the cervical sympathetic with the ear was fully detailed, as showing how comparatively slight aural derangements might lead to profound symptoms. Similarly, it was conceivable that irritation of the stomach might react through the vagus nerve and the sympathetic upon the labyrinth. He considers there is a perfect analogy between the shock propagated from a contused brachial nerve with its concomitant vertigo and the lesser shock caused to the nerves of the stomach by unmasticated food, and propagated thence to the same vessel, and attended with the same symptom, viz., giddiness. Dr. Woakes referred to the connection between the sympathetic and vagus nerves as explanatory of many of the symptoms of indigestion, *e. g.*, shoulder-tip pain. This might be due to distention of the supra-scapular nerve from the inhibitory dilatation of its minute vessels. His argument as to the *modus operandi* of "vertigo e leso stomacho" may be given in his own words: "The ingestion of the irritant gives rise to an impression which is conveyed along the afferent channels forming a communication between the pneumogastric nerve and the inferior cervical ganglion, whence it is reflected to the vertebral artery in the shape of a wave of diminished inhibition. This is equivalent to an increased flow of blood to the labyrinth, with corresponding pressure on the endolymph." Thus is produced giddiness when the semicircular canals are alone involved; if the cochlea be also congested there is tinnitus. Deafness may be due to inflammatory effusion. Mr. Dalby observed that the subject of the relation existing between the auditory and pneumogastric nerves was full of interest, and cited numerous conditions in which this connection was exemplified, especially cases of deafness occurring with derangements of the vagus nerve, the

external and mid-ear being healthy. It was questionable whether the labyrinth was always the seat of change. Dr. Jagielski said that the following drugs produced vertigo, viz., salicylate of soda, belladonna, cocculus indicus, and nitrate of silver, some of them producing also peculiar movements, some falling to the left and others to the right side, or in circles.

On the General Treatment of Melancholia.

Dr. A. O. KELLOGG writes on this subject, in the *American Journal of the Medical Sciences*, January, 1878 :—

One great difficulty to the general practitioner lies in the fact that the earlier symptoms of melancholic insanity are not apparently so grave as to call for any special attention; the delusions, if developed, are carefully concealed by the patient, and there is nothing to the superficial observer on which insanity can be so certainly predicated as to call for treatment, much less for seclusion or restraint. Still, as in all diseases, there are premonitory symptoms which should be carefully watched and met, and these I now proceed to point out.

Frequently the patient himself is conscious that there is something wrong with him, and sometimes he will mention symptoms of a change in character, conduct, disposition, or feeling, which even his friends, if they observe them, are not willing to point out, or feel a delicacy in doing so. He sleeps badly, has disturbing dreams, perhaps, and is up, wandering about his room. His digestion is bad, breath foul, and bowels constipated. The usual scapegoats for all physical and mental evils, the stomach and liver, are charged with not doing their duty, or doing it imperfectly; there is great listlessness, torpor of the functions of the brain and nervous system, thought and feeling, which torpor may be followed in time by exaltation of the same faculties—periods of depression alternating with periods of exaltation.

Now it is in this state that medical treatment is demanded, and in which it tells best, and if it is neglected, the headache usually present becomes more aggravated, the sleep more and more disturbed, and the patient goes on from bad to worse, till he passes into the next or delusional stage.

In this first stage, though he may have made neither threats nor attempts at suicide, he is very uncertain, and should be watched as well as treated, for at any time he may lose self-control and destroy himself. It is scarcely necessary for me to point out the indications of treatment to a society of experienced medical gentlemen, as such will readily suggest themselves.

The general health must be looked after, digestion and sleep must be attended to, especially the latter, for if it becomes less and less the patient is sure to go on from bad to worse. To accomplish this I use various remedies, and in various combinations, as seem to be indicated by the individual case. Among these I will mention the following, giving them in the order in which we have found them most useful: hydrate of chloral, in doses of from 10 to 60 grs; tincture of hyoscyamus, made from Squibb's extract, from ʒj to ʒiij; officinal solution of morphia, from ʒj to ʒiij. Each of these remedies will do well in combination with the others, in the doses of each spoken of, and will generally accomplish the purpose and procure from two to six hours of good, natural sleep, when the dose may be safely repeated. I have yet to see any evil consequences result from the combination of any two of these remedies in the doses above indicated. The hydrate of chloral in combination with tincture of hyoscyamus is, according to our experience, the best in a large majority of cases. Opium is not tolerated in many cases of this as of other diseases, and will aggravate

the very symptoms it is given to relieve, and produce insomnia. Still, there are cases in which morphia, in combination with hyoscyamus, acts admirably.

We must not fail to look closely after the causes of all these symptoms, and seek to remove them. In a very large majority of cases overwork and exhaustion from innutrition, or, in women, exhaustion from lactation, will be found, and these must be remedied. Other causes will oftentimes be adduced by friends, which, on close examination, it will be found have not been operative, but others that have been will be readily traced. The cause, indeed, may have passed away before the case is seen, as frequently happens; but its effect upon the brain will still have to be dealt with, and this is sometimes very lasting, and will require much time for its removal and much patience on the part of both friends and physician. Frequently, however, by the judicious management of this early stage much will be done toward preventing the evils of a more advanced condition. In nearly all cases there should be some change in the external circumstances of the patient, and here many things must be taken into account.

One of the first means proposed is to attempt to divert the patient's morbid thoughts from himself by travel; but, according to my experience, this is of little use, for the patients take their diseases with them, and though they take their physicians along, time must do the work, while the physician must do the watching, and this latter duty is not by any means as easy as the simple prescribing of drugs. If he travels by rail the physician is constantly harassed by the thought that every comfortable drawing-room car may at any moment become a car of Juggernaut to his patient; and if he travels by steamship, the temptation to sea-bathing from the stern of the ship is, as in the case of a late judge of the Supreme Court of this State, too great for the resistance of the patient or the vigilance of the physician.

A trip of any kind, except to a hospital, in the early stages of melancholia, as in all other diseases, is worse than useless, a delusion and a snare, however useful such may be in promoting convalescence when this is once fairly established. Melancholia, like every other disease, in its early stages requires rest, care, and treatment, and wherever these can be best secured is the place for the patient.

Wherever he is, he must be carefully nourished and sustained by a full, generous diet. From fear of biliousness or indigestion, he has probably fasted, abstained from food at least, and perhaps from drink; but as to the last it is not improbable that he may have indulged excessively in stimulating beverages. These, in moderation, however, are not without their use, for in all such cases there is generally deficiency of nerve and brain force, which, next to good nutritious food, is supplied by wine, eggs, milk, malt liquors, iron, quinine, strychnine, arsenic, etc., as, in the judgment of the physician, may seem indicated. But in spite of all your efforts, all your care, nutrition, medication, and watchfulness, the case, as often happens, goes on from bad to worse. Most extraordinary delusions arise, and prompted by these delusions we witness the most extraordinary conduct, and acts, often most ludicrous, sometimes dangerous, always painful to the truly humane observer, however amusing they may be to the thoughtless and impertinent, from whose observation they should be carefully guarded. Delusions as we have said, of a most painful character, take full possession of the mind.

The Arsenical Treatment of Malarial Neuralgia.

The Atlanta *Medical and Surgical Journal*, December, 1877, gives a case reported by Dr. BAIRD, of a cure, by arsenic, of a facial neuralgia that had existed for

fifteen years. The subject was a gentleman, aged 35, who first caught malaria in Florida, and suffered from its effects during the war, while confined in a Federal prison. His general health was shattered, his hopes gone. He had consulted many practitioners, and taken the usual amount of patent nostrums. The infra- and supra-orbital and maxillary branches of the fifth pair of nerves were all affected. The pain was constant, at times, owing to spasmodic contractions, almost insupportable. The patient found, of late, the greatest benefit from a series of successive small blisters, with which his face and head were dotted; on these blistered surfaces he sprinkled morphia. Dr. B., with many misgivings, commenced the treatment by using galvanism daily, which gave much immediate relief—resting the face, as the patient expressed it. He was also given, for a time, ten grains quinia daily, but this was soon discontinued. Fowler's solution of arsenic, in dose of four drops ter die, increased daily a drop, until its physiological effects were produced—which generally happened in twenty day.—was the main feature in the cure, which occurred in about two months. When arsenic caused puffiness, etc., it was discontinued for a few days, but pushed again and again, until success was procured. Six months have now elapsed, and there has been no return of the pain. Dr. Baird is of the opinion that neuralgia is frequently caused by malaria, and that arsenic will cure where quinine fails, even when given in full doses, say 30 or 40 grains ter die. He attempted to use the Fowler's solution hypodermically, but saw that abscess would result, if persisted in.

Insanity Owing to Heat, Especially to Sunstroke.

The London *Medical Record*, January 15th, has an abstract from an article by Dr. BARTENS, on this subject:—

Except by the old writers, who ascribed all kinds of brain disease to the sun's rays on the head, not many cases of psychoses caused by radiant heat have been recorded, and those mostly of short duration. Delacoux reports that, during the march of Marshal Bugeaud in Oran, in 1838, under a hot sun, 200 men were taken ill with symptoms of brain hyperæmia; of these 11 committed suicide, in consequence of hallucinations. Barclay saw a case of melancholia following insolation in South Africa; the patient ultimately destroyed himself. Grisolle observed among sailors, in the hot zones, melancholia with strong tendency to suicide. Oberneier reports a case of insolation, in which great excitement, with marked hallucinations of sight and hearing, preceded death. Persistent weakness of memory, dullness of understanding, and various paralyses, have frequently been observed after *coup de soleil.*

Hardly anything is to be found in literature concerning the influence of the heat radiated from furnaces in large factories, etc., on the causation of insanity. The paucity of these cases may be partly due to the following causes: when the heat becomes unbearable to any workman he can always escape into a cooler atmosphere, which under a tropical sun he could not do; the rays from a fire do not fall so directly upon the head as do those from the sun, but act mostly upon the anterior surface of the body and the face; lastly, stokers and others who work near large furnaces are habituated to very high temperatures, and that this affords very great immunity from any ill effects is shown by the rarity of insolation among natives of the tropics, as compared with foreigners from more temperate climates.

Cases have occurred of sudden illness resembling insolation, though really due to the heat of fire, which have ended in death, and in which the post-mortem appearances, especially as regards the brain and its membranes, have been identical with

those caused by sunstroke. The similarity of the influence of the sun's rays and of artificial heat on the brain and its membranes has been proved by experiment upon animals by Oberneier, Wood, and others.

Psychoses due to the action of radiant heat are really more frequent than has been hitherto believed. During the last few years there have been fourteen such cases in the asylum at Siegburg; six of these occurred in workmen exposed to excessive heat, and eight were due to insolation.

In two fatal cases, in one of which insanity was due to sunstroke, and in the other to the heat of a furnace, hæmatomas of old and recent date were found, together with cloudiness and thickening of the membranes, hyperæmia of the same, and œdema of the brain. In the latter of the two cases there were in addition granulations of the ependyma on the floor of the lateral and fourth ventricles, gray degeneration of the lateral columns, hyperæmic and greatly thickened membranes of the spinal cord.

Insanity due to insolation generally commences quite suddenly. Only in a few cases the patients apparently recover and resume their ordinary occupation, until, under some harmful influence, the disease again breaks out. In the case of stokers, feelings of weakness, fatigue, disinclination for work, pains in the head, etc., generally precede for a considerable time the outbreak of insanity. The patients become anxious and restless, believe themselves to be followed and mocked; sooner or later they become maniacal, destructive, and dirty in their habits. They are mostly also sexually excited, and masturbate shamelessly. In some cases the disease commences directly with psychic and motor excitement, and grandiose delusions are developed, such as are usually only observed in paralytics. The maniacal excitement, in a few cases, lasts only a short time, and melancholy, with weariness of life, predominates until the end of the disease. In other cases, however, mania, with large delusions, persists till death. All the patients are subject to frequently recurring attacks of congestion to the head; they constantly appear preoccupied, and even when most excited seem to be in a kind of dream.

In almost all cases paralytic symptoms appear early. The pupils are at first contracted, but later dilated and unequal; strabismus is frequent, and ptosis not uncommon. The tongue trembles when protruded, and inclines to one side or the other. The speech becomes stammering and the gait unsteady. In most cases the paralytic symptoms steadily progress; the intellect, especially the memory, fades rapidly, and the patients die, often in a very short time, of apoplexy or general paralysis. In the cases of recovery, the patients become gradually quieter, the paralytic symptoms disappear, and after a short stage of reaction, the patient gets well.

Here follow reports of all the fourteen cases observed by the author; in only three of them did hereditary disposition exist. Of the eight cases ascribed to insolation, five commenced quite suddenly, while those due to artificial heat were mostly preceded by prodromal symptoms. In nearly all the cases the insanity began with depression due to powerful hallucinations and delusions of persecution; after a variable period attacks of mania supervened; this last was accompanied in six of the cases by large delusions. All the cases except three presented paralytic symptoms soon after the outbreak of mental disease. These gradually disappeared as the intellect became clearer in the cases which recovered, but were progressive in the other cases.

Of the whole fourteen patients, five were discharged cured, two died, one is

demented, three are still under treatment, and the remainder have been discharged as incurable. Of the five cases which recovered, two were ascribed to *coup de soleil*, and the other three occurred in workmen exposed to excessive artificial heat. It appears that three of the eight patients whose insanity followed insolation made attempts at suicide; whereas none of the fire-workers showed any suicidal tendency.

On Writers' Cramp.

M. GALLARD, in his recent volume, *Clinique Médicale de la Pitié*, has come to the conclusion that writers' cramp is certainly a professional disease, but a clinical study of it decidedly shows that it is far from being special to persons who write much. Absolutely similar disturbances are seen in persons who follow other avocations, such as engravers, artificial flower makers, pianists, violinists, telegraphists who use the House telegraph, etc. But in all these persons the disturbances observed occur in the hands and fingers. Absolutely similar, nay, identical disturbances are observed in persons following professions which exercise other muscles than those of the fore-arm or hand; and then these disturbances occur in the muscles which are necessarily contracted by the habitual exercise of the avocation, whether these muscles be those of the arm, shoulder, leg, neck, face, or even the trunk. The analysis of these various facts leads the writer to the first conclusion, that the disease in question is not peculiar to writers; the analysis of the symptoms leads him to another conclusion, that it is not a cramp; whence he feels the necessity of substituting for the incorrect denomination writers' cramp, the far more suitable name proposed by Dr. Duchenne, of Boulogne, viz., functional impotence. In reference to establishing the nature of this morbid condition, M. Gallard, after having proved that it evades any anatomical localization whatever, is led to admit that it is a simple functional disturbance and nothing else. He is particularly struck by finding, with regard to its etiology, that fatigue is far from being an essential cause of it; for this disease does not occur in those who work in a certain way, when the intelligence, otherwise occupied, does not exercise a sufficiently attentive supervision over the muscular movements. This is because there is at that time a veritable discordance between the cerebral acts and the movements, which are performed in a thoroughly automatic manner; that the muscles become fatigued, and finish by performing disordinate movements; that they may be considered as being in an ataxic condition. It is very singular to see a trouble so essentially nervous constitute a morbid functional state which is almost incurable; and M. Gallard in vain seeks the reason of this peculiarity in certain diathetic influences, which he most carefully studies, and which he endeavors to make the basis of a rational treatment. But he is obliged to acknowledge the small efficacy of all the medical means he has successively employed, including electricity; and, tired of the struggle, is reduced to advise prothetic apparatus, in which he does not seem to have much more confidence, although he describes them with great minuteness.

On the Treatment of Hysteria.

In an article on this disease, in the *Medical Monthly*, January, 1878, Dr. W. C. DABNEY says:—

It has been wisely remarked that the number of remedies which have been proposed for any disease are in direct proportion to the powerlessness of all remedies to cure that disease; and, judged by this standard, one would conclude that hysteria is a most unmanageable affection.

The various remedies may be divided into two classes, as they are given to relieve the paroxysms themselves, or to remove the tendency to such paroxysms.

To remove the tendency to hysterical attacks, and to cure those cases which are of long duration, and not accompanied by any sudden or violent manifestations, tonics, such as quinine, iron, strychnia, zinc, phosphorus, cod-liver oil, arsenic, etc., have been largely used.

Mr. Skey placed the preparations of bark in the front rank. Exercise in the open air, especially on horseback, he justly considered of the greatest benefit.

A combination of the remedies just mentioned may frequently be used with advantage. A prescription which I have found exceedingly serviceable, is the following:—

℞. Tinct. cinchona bark, f.℥ij
Tinct. nux vomica.
Dilute phosphoric acid, aa. f.℥ss. M.
Sig.—One teaspoonful three times a day.

When iron is needed, the bitter wine of iron may be substituted for the tincture of bark, and, when deemed advisable, Fowler's solution of arsenic may be added. In other cases, I have given phosphide of zinc and extract of nux vomica, with very happy effect, when the combination just mentioned had either failed to give relief or had lost its effect. One of my patients, a lady, with lateral curvature of the spine, who has been an invalid for many years, has obtained very great relief from the use of these remedies, sometimes using one prescription and sometimes the other. When there is ovarian tenderness, I have obtained more benefit from the use of suppositories of belladonna inserted into the vagina, than from anything else. In a very aggravated case of hysterical catalepsy which I saw some years ago, and in which the attacks had recurred every few days for several years, speedy, permanent relief was obtained by the combined use of belladonna suppositories and the bark, strychnia and phosphorus.

Salicylic Acid in Lumbago.

Dr. Arthur G. Hobbs writes to the Louisville *Medical News*, March 23d, 1878:—

As this comparatively late addition to materia medica has been so much vaunted in the treatment of acute rheumatism, I think it will not be out of place to give my experience, though short, in its use in lumbago.

Notwithstanding lumbago is one form of chronic rheumatism, I have never seen salicylic acid recommended especially as its cure; but having been called during the month of July, 1877, and not knowing any specific, I determined to administer this acid and give it a fair trial. I shall describe the case below.

Since salicylic acid has been discussed so in its relation to acute rheumatism, I shall not stop to add my mite of experience in that direction, except that I have come to regard it as nearly specific in that disease.

Case 1.—Mr. D. D., aged forty-two, subject to lumbago for the last seven years, attacks occurring from five to eight times a year. I found him motionless, in bed; pain so intense on the slightest movement that he could not even flex his toes without excruciating pain. I gave him a No. 1 capsule (about ten or twelve grains), charged with salicylic acid, every two hours. After ten hours he could turn himself in bed; after twenty-four hours he got out of bed and walked to the dining-table in

the next room; and after forty-eight hours he was out attending to his farm duties, with no pain when he walked carefully. When ten doses had been taken I ordered the capsule only four times a day, and advised him to rest a week and take nourishing diet. He told me his previous attacks had always lasted from one to three weeks; and, said he, "This is the most severe attack I have ever had but one, and that lasted me three weeks instead of three days." He has had symptoms of attacks twice since, but he began at once on his capsules, and the symptoms passed away. He has gone longer this time free from lumbago than ever before during seven years.

CASE 2.—Mrs. M. H., aged thirty-two. Found her helpless, in bed, with no pain especially, except when she attempted to rise; could not walk without support, on account of the severe pain in the lumbar region. I left her twelve capsules, same as in Case 1, to be taken every three hours; sent her eight more capsules the next day; and had the satisfaction of learning from her husband, on the fourth day, that she was doing her household duties.

CASE 3.—Miss M. M., aged twenty; her second attack of lumbago. Complained of constant pain in the lumbar region; could only rest when the muscles of her back were on the stretch. Found her sitting humped in bed. Gave her ten capsules, to be taken every three hours; sent her ten more the next day; and met her riding to town, on horseback, on the fifth day after her first attack.

CASE 4.—Mr. W. A., aged thirty-seven, first attack, came to my office and said he had been suffering for four days with severe pains in the muscles of his back, and also complained of pains and cramps in the flexor muscles of his thighs, and even lower down, especially the gastrocnemium. I gave him salicylic acid, always in capsules, about forty grains a day, for four days. Upon the sixth day he reported himself as having improved from the time he began his capsules.

In Case 3 there was a recurrence of the attack two months afterward. She sent immediately after feeling the first symptoms. I sent her six doses, to be taken every two hours. When I heard from her again she was well. I have never had unpleasant stomach symptoms from such large doses but once, and then by ceasing the acid a short time the symptoms disappeared. Never having read of lumbago succumbing so readily to treatment, I trust that the report of these cases may not be without interest to your readers.

III. BLOOD DISEASES.

The Nature and Treatment of Malarial Hæmaturia.

Dr. JOSEPH JONES, of New Orleans, reports several cases of this disease in the New Orleans *Medical and Surgical Journal*, February, 1878, and adds some general remarks, from which we extract as follows:—

In some of these cases immense quantities of green biliary fluid were vomited, and the patient died in a state of hopeless collapse, with depression of temperature, and cold extremities, covered with a cold, clammy sweat. As a general rule, suppression of the function of the kidneys is a fatal sign, and, as in yellow fever, may be attended with convulsions, delirium and coma.

The pathological changes which I have observed after death are characteristic of malarial paroxysmal fever; enlarged slate- and bronzed-colored liver, with pigment granules; enlarged and softened, or indurated spleen, with altered globules and

pigment granules; gall bladder distended with thick, ropy bile, presentiug, when seen *en masse*, a greenish-black color, and in thin layers a deep yellow. As much as 1600 grains of bile, of high specific gravity, have been obtained from the gall bladder in malarial hæmaturia; whilst in yellow fever, not more than 120 grains of bile are, as a general rule, contained in the relaxed gall bladder; and in some cases of the disease I have found the gall bladder containing only an albuminoid liquid, coagulable by heat and nitric acid; and in other cases of yellow fever I have found the gall bladder distended with dark, liquid blood. When blood is found in the gall bladder after death from yellow fever, its presence must be referred to the same causes which induce the black vomit from the stomach in this disease.

The bile of malarial hæmaturia is highly concentrated, and, as far as my experience extends, never contains blood; neither is the dark green (black) vomit of this disease blood or altered blood, but it is an acrid secretion from the stomach, highly charged with bile.

Bile is universally present in the vomited matters of malarial hæmaturia. Bile is universally absent from the black vomit of yellow fever.

In the former disease the whole system, blood, stomach, intestinal canal, and organs generally, are delug d with bile; in yellow fever the coloring matters and acids of the bile are found in the blood, but in the third stage of the disease, namely, that of calm and depression, and black vomit, bile is absent throughout the gastro-intestinal canal.

The kidneys, after death from malarial hæmaturia, present a deep-red-purple congested hue, and their sections, examined under the microscope, exhibit the tubuli uriniferi filled with coagulated blood. In many specimens, I have been able to ascertain that the rupture of the capillaries occurred chiefly in the malpighian corpuscles, and have been able to trace the tubuli uriniferi through their whole extent, as brilliant opaque cylinders filled with coagulated blood.

The best demonstration which I have been able to give my students of the relationship of the excretory structures of the human kidney, have been derived from sections of the kidneys of malarial hæmaturia.

It is evident, therefore, that the issue in any case of malarial hæmaturia will largely depend upon the number of urinary tubes thus blocked up with coagulated blood.

In yellow fever, the tubuli uriniferi are blocked up with detached cells, yellow granular and oleaginous matters, but not with blood corpuscles.

Malarial hæmaturia and yellow fever, although possessing some symptoms in common, are distinct diseases, and require different modes of treatment.

As far as my experience extends, I have been led to rely, in the treatment of malarial hæmaturia, chiefly upon such measures as—

1st. Prompt purgation, with such agents as calomel, extract of rhubarb and aloes.

2d. Counter irritation over the region of the kidneys.

3d. Cut-cups; the local abstraction of blood over the region of the kidneys by cut-cups.

4th. Quinine, in full and sufficient doses to prevent the recurrence of the paroxysms. If rejected by the mouth, the quinine must be administered by the rectum; and if both avenues are closed, in virtue of incessant purgation and vomiting, then it may be introduced by subcutaneous injection, or through blistered surfaces.

5th. Nutritious diet, in small quantities and at regular intervals, when retained by the stomach.

6th. The persistent use of calomel, rhubarb, aloes and colocynth, in small doses, combined with quinine, at regular intervals three or four times a day, during the continuance of the jaundice, if the bowels are torpid.

7th. After the establishment of convalescence, the continuous use of such tonics as the nitro-muriatic acid, and tincture sesquichloride of iron, in combination with quinine; nutritious diet, generous wine; and change of climate to an elevated non-malarious region, if within the power of the patient.

On Typho-Malarial Fever.

Dr. L. J. WOOLEN writes, concerning this disease, in the *American Practitioner*, December, 1877:—

Temperature.—The temperature in severe cases of typho-malarial fever is, in the beginning, higher than in typhoid. In one of the cases alluded to, the patient, on the morning of the day that he first took to his bed, had a temperature of 106°. This continued for forty-eight hours, when the temperature went down to 103°; and the pulse, which before had been as high as 130, came down, under the influence of veratrum viride, to 90. The high temperature and fast pulse continuing for a long time, led me to make an unfavorable prognosis in the commencement of his attack. Dr. Stokes, in his lectures on fever, says, "that a very high temperature in the beginning of an attack of fever is evidence that it is not typhoid." But a high temperature in the commencement of a fever does not exclude typho-malarial; it only renders the prognosis very grave. The morning and the evening temperature in typho-malarial vary more than in typhoid fever. In the latter we usually have a difference of from one to two degrees in the morning and the evening temperature, whereas in typho-malarial the difference will often be from two to three degrees.

The Pulse.—No differential inference can be drawn from the pulse. In mild cases of either disease the pulse may not be much above the normal standard. A fast pulse in either disease indicates great danger. In typhoid fever a pulse of 120 or more, continuing without abatement for two or three days, nearly always points to a fatal termination: I think the same rule holds good in typho-malarial fever. In one of my eleven cases, however—a young lady of nineteen—the pulse was above 120 for three or four days, and during one evening and night was above 150, and yet she recovered. Bronchitis had been present from the first, and during the second week pneumonia developed in the lower lobe of the right lung. At the time her pulse was 150 she was suffering with great tumefaction of the throat, diphtheritic patches being scattered over the tonsils. I attributed the increased frequency of the pulse mainly to the swollen condition of the throat, the respirations being at the time over forty per minute.

The Tongue.—In typho-malarial fever the tongue differs but little, if any, from what we observe in pure typhoid. In mild cases the tongue is coated with white fur at the commencement, and as the disease advances redness at the tip, and oftentimes in the centre, occurs. In the more severe cases the tongue becomes as heavily coated and as dry as in typhoid; sordes collect upon the teeth and on the lips, as in the latter disease.

Diarrhœa.—In most cases of typho-malarial fever diarrhœa comes on as the disease advances, although I think that, in this disease, it is not so constant and so troublesome as in typhoid of equal severity. Iliac tenderness and tympanitis accompany all of the severe cases.

The head symptoms differ somewhat in the two diseases. In some cases of each

disease we have the low, muttering delirium; but the dull expression and listless eye belong more to typhoid than to typho-malarial. When delirium occurs in typho-malarial fever, it is apt to be more active than in typhoid, and the eye does not, to the same extent, lose its brilliancy and natural appearance. Headache is present as often in typho-malarial as in typhoid fever. When severe in the commencement of an attack, it is of unfavorable import. Epistaxis may be present in this, as in typhoid fever.

Hemorrhage from the bowels may occur in typho-malarial fever, but less often than in typhoid. I remember but one case occurring in my practice where hemorrhage from the bowels was at all alarming. The patient, a young lady of twenty-five years of age, was seized with typho malarial fever, and in the second week of her sickness fearful hemorrhage of the bowels came on at the hour when she had previously been having a chill. The hemorrhage returned at the same time for two or three nights, and the patient finally succumbed. Previous to her attack she had deprived herself of sleep, nursing her father, mother and two brothers, who were sick with intermittent fever. In the beginning of her attack her case seemed to be like the others; but soon the typhoid symptoms set in, with high temperature and fast pulse.

The skin, in typho-malarial, is not as dry as in typhoid fever. In the latter disease we may have diaphoresis in, perhaps, one third of the cases, but it will be less marked than in typho-malarial; and in the latter disease it is rare for a case to continue a week without free perspiration taking place. The peculiar eruption of typhoid fever is but seldom seen in typho-malarial; indeed, it is so seldom present in true typhoid, as seen in country practice, that it merits but little notice.

Complications.—The various complications that are sometimes met with during the progress of typhoid may arise with equal frequency in typho-malarial fever.

Bronchitis is oftener seen in typho-malarial than in typhoid fever. Of the eleven cases recently treated, four were found to be suffering from bronchitis at the very beginning of their sickness. Usually the bronchitis is not severe, but those who have bronchitis at the beginning are more liable to pneumonia, during the progress of their sickness, than those who are free from bronchitis at the start. Thus two of the four cases that began with bronchitis were attacked with pneumonia during the progress of their fever, while those who did not have bronchitis at the onset were free from pneumonia during the continuance of the fever.

Inflammation of the parotid glands may occur in this as well as in typhoid fever. Of the eleven cases heretofore alluded to, one suffered with parotitis, ending in suppuration. The parotid gland became involved, during the second week of the disease, and soon suppurated. This caused an elevation of the temperature, and an increased frequency of the pulse, for two or three days; but at no time was the patient in immediate danger. From what I have seen of this complication in typhoid fever, I feel confident that Trousseau's opinion of its almost uniform fatality is erroneous. Where suppuration of the parotid gland comes on, in very advanced stages of typhoid fever, the prognosis is unfavorable; but if it occur early in the disease, before the strength is exhausted, the complication is not an alarming one.

Sore throat occurred in three of the eleven cases. In one only was diphtheritic deposit noticed. In the other two cases there were redness and swelling of the tonsils, pharynx and uvula, but no deposit of any character.

Perforation of the Intestine.—This complication may occur in either typhoid or

typho malarial fever. One of the eleven cases of typho-malarial fever last treated died of peritonitis, the result of perforation. The case was an exceedingly mild one, the patient being able to walk about the town and attend to light work up to within twelve hours of the occurrence of perforation. In his case the remissions were distinctly marked, the temperature being at 102° in the evening and from 98° to 100° in the morning. Forty-eight hours before perforation took place, his temperature (at eight o'clock A. M.) was normal. He had bronchitis at the beginning of his attack. Eighteen hours before perforation occurred, he visited me at my office, and, for the first time during his illness, complained that the walk fatigued him. He was suffering with pain referred to the pit of the stomach. The pain was not very severe, but was heavy and sickening in character, causing him to bend his body forward while sitting in a chair. That night, while at stool, he was attacked with a sharp pain in the bowels, followed by a severe chill that lasted half an hour. When I saw him, five hours afterward, the abdomen was tympanitic, and all the symptoms of grave peritonitis were present. During the progress of his sickness his bowels were constipated. The first symptoms of diarrhœa occurred just previous to the time that perforation took place.

Treatment.—In the management of typho-malarial fever, it must be borne in mind that the disease partakes of the character both of typhoid and remittent fever. Thus, while we nourish and stimulate the patient, as in typhoid fever, we must administer such remedies as will modify or control the malarial element that enters so conspicuously into the disease. In the beginning of a case reference must be had to the fact that the disease will last a long time, and hence, from the very start, the strength of the patient must be kept up. This is best accomplished by rest in the recumbent posture, and by proper nourishment. Where milk agrees with a patient, it is by far the best article that can be given. Beef-tea and animal broths will also be found useful. As the disease advances, and the patient becomes enfeebled, it will be necessary to administer stimulants freely.

Purgatives, as a rule, must be avoided from the beginning. If the bowels have been constipated for some days, it may be necessary to administer a mild aperient. For this purpose, nothing will be found better than the simple syrup of rhubarb. Its secondary effects are astringent, and there need be no fear that diarrhœa will result from its administration.

Diaphoresis may be encouraged by giving the spirits of mindererus. I usually add ten or fifteen drops of the tincture of digitalis to the mindererus, especially in those cases attended with bronchitis. The digitalis, being a heart tonic, is useful in keeping up the strength of that organ.

Where the tongue is dry, it will be proper, in most cases, to give fifteen or twenty drops of the dilute muriatic acid in a wineglassful of water, every three or four hours.

Turpentine stupes to the abdomen, in those cases attended with tympanitic distention of the bowels, will be useful.

Complications, when they arise, should be met as in ordinary cases of typhoid fever.

It is the usual practice in this disease, where the remissions are marked, to give quinia, either in large or small doses. I have given it in a large number of cases, and have not seen it arrest the disease in a single instance. Indeed, I can call to mind but one case where it seemed at all beneficial, and that was in one of the eleven cases lately treated. In the case referred to, the third week of the disease the patient

was suddenly seized with a severe chill. I was immediately summoned, and arrived just as the chill had gone off. At first I suspected perforation, the patient complaining of pain in the bowels, with a pulse above 140. In the course of half an hour the pulse had declined to 118, and the patient began to perspire freely. He was placed upon full doses of quinia, and in the course of twenty hours from the first chill he had a second but lighter one; quinia was continued, and there was no subsequent return. But, although the chills did not return, his temperature kept up, being as high as before the administration of the quinia. Indeed, where the tongue is dry and coated, quinia will not produce its specific effect; but, on the contrary, I am satisfied that under such circumstances it will do positive harm, even in small doses. Under its use the tongue will become dryer, and the head symptoms are rendered materially worse.

Four of the eleven cases occurred in children, ranging in age from seven to fourteen years. In each one the attack began as a pure remittent. Each morning the temperature was but little above the normal standard. In the evening there was an exacerbation, the temperature going up to 102°. During the night the patients perspired. The cases were mild throughout the whole attack. In the beginning each one had quinia and sulphate of cinchonidia in full doses. No good effect was noticed from the medicine in any of the cases. If any effect was produced, it was to increase the headache and render the patient more uncomfortable.

Having been thoroughly convinced, some time since, that quinia seldom if ever produced any good effect in typho-malarial fever, I determined to try some substitute for it. Two years ago I began occasionally to prescribe Fowler's solution of arsenic in this disease. My experience so far has not been very extensive with the medicine, but I am of opinion that it is far preferable to quinia in those cases where the latter article is indicated. I give it to adults in doses of four to six drops every four hours, always giving a glass of milk or other nourishment before administering the arsenic. In those cases where the arsenic was given at the beginning of the attack, and continued in proper doses during the continuance of the case, unless contra-indicated, the disease seemed to be perceptibly ameliorated by its action. I have not seen the tongue rendered dry by its use, and when given to patients with a dry tongue it was invariably well borne. Diarrhœa and tympanitic distention of the bowels do not contraindicate its employment. Of course the dose should be small, that above mentioned being the largest I have ever given; while, in most cases, two or three drops is enough, if given at short intervals.

To control the nervous symptoms that are so conspicuous in typho-malarial fever, I know of no medicine equal to Squibb's fluid extract of lupulin. It calms nervous excitement, and in many instances produces sound and refreshing sleep. In one of my late cases, the patient did not sleep more than one hour in three days and nights. The hands and arms were constantly in motion, and the patient was slightly delirious. The lupulin was given in doses of twenty-five drops, on sugar, every two hours. Under its influence the patient became calm, but did not sleep. A few doses of chloral hydrate, of twenty grains each, gave her a long refreshing sleep, from which she awoke feeling greatly benefited. Fluid extract of lupulin should be administered by dropping it on sugar, placing it in the mouth and washing it down with milk or water. Fluids precipitate the medicine in the form of a solid mass, which adheres so tenaciously that it is almost impossible to separate it from the glass. It may be given in doses of twenty to sixty drops, and in many cases will be found an excellent remedy to control many of the nervous symptoms that accompany low fevers.

Treatment of Malarial Fever.

Dr. J. B. MOORE gives to the *Medical Brief*, January, 1878, his mode of treatment of this fever, as follows:—

Thoroughly evacuate the bowels when constipated, and in other cases administer mass. hydrarg., with or without opium; and when the stomach is very foul, administer an emetic, and follow up this treatment by giving, every three hours, the following pills:—

R.	Sulph. cinchonidia,	3j	
	Mass. hydrarg,	gr.xv	
	Ol. capsici,	gtt.iv.	M.
Ft pil. xij.			

This treatment never fails. I have often directed my patients to dissolve one teaspoonful of table salt in two goblets of cold water, and take this at one draught, every morning before breakfast. The salt and water taken in these proportions never fails to thoroughly empty the bowels, and act as a tonic by keeping the stomach well cleansed. The sulph. cinchonidia, I discover, answers all the purposes of quinine, and is much cheaper.

Malarial Fever at Rome.

On this subject, so interesting to the numerous Americans who visit the Eternal City, we extract the following article from the *British Medical Journal*, April 27th, 1878, by LAUCHLAN AITKEN, M.D., of Rome:—

The existence of a malarial element in the climate of Rome is so generally admitted, that it is quite unnecessary to enter into the history of the subject, to point out the foci of infection in the Campagna, to discuss the different effects of the poison, or even to mention the many varieties of malarial fever which authors describe. In this paper I shall only deal with the effects of the malaria on unacclimatized strangers, English or American, who have been under my care. So dormant is the poison during the winter and spring months, that acclimatized members of the nationalities mentioned, who can afford to live well and to reside in a healthy quarter, are, so far as my six years' experience goes, never affected; but visitors, who are careless of consequences and heedless of the ordinary warnings, often overwork themselves in sight-seeing, become heated in the sun, and stand for hours in museums, galleries, and churches, exhausting their nervous systems, or expose themselves more directly on the Campagna, or even within the walls of the city, to a chill, which results in an attack of so-called Roman fever. What this fever is the residents are often much puzzled to know, as strangers include under the generic term all kinds of ailments, from a simple cold to a severe enteric fever; and it is sufficient to fall ill in Rome to be credited everywhere with being a victim of that vague disease. The result is naturally a wide divergence of views on the subject, and an alarm proportionate to the amount of confusion created. *Omne ignotum pro terribili* is the idea of all who speak of Roman fever.

That the malarial poison does produce, more particularly in the unacclimatized, a type of fever which can scarcely be classed under any such heading as intermittent or remittent, is certain. To this form the name "subcontinuous typhoid" has been given by Professor Baccelli of Rome. The term, fortunately, has not as yet become widely known; for, though the type of fever may be regarded as subcontinuous, yet, in whatever sense we take the word typhoid, the epithet is misapplied. If we regard it as used to express the group of symptoms called typhoid, or the typhoid state, my

xperience contradicts such a use, as none of the forty-five cases I have treated hroughout have presented those symptoms which British physicians, at least, class nder this heading. On the other hand, it is evident that Baccelli does not look on his fever as the product of the union of the malarial poison wit' that of decomposng excrementitious matter, as he carefully distinguishes his subcontinued typhoid rom true ileo-typhus (enteric fever). Indeed, Baccelli seems to contradict himself n his lectures on the subject, as in one part he says that "the two morbid entities—he typhoid and malarial poisons—each losing its autonomy, become so fused ogether, but with the malarial predominating, that they give rise to the special ype—subcontinuous typhoid;" while in other pages of the same pamphlet he asserts hat "the subcontinuous typhoid is a fever resulting from malarial infection, pernicious as to type;" and again, "that, when a subcontinuous typhoid breaks out, every other morbid element, rheumatic, bilious, or typhoid, becomes subordinate to the malarial." It is, therefore, difficult to determine in what exact sense Baccelli uses the term typhoid; and I prefer to regard those fevers as truly malarial, though presenting a remarkably continued course. I am far from denying the occurrence of the combined type of fever which may appropriately be called typho-malarial. Indeed, I have treated such cases; but, as might be expected, the more severe poison very soon predominates, and the bowel symptoms and eruption make the diagnosis of an enteric fever clear.

Etiology.—The fever to be described results, then, from malarial poisoning; the predisposing causes being, in the cases I have seen, unacclimatization; lowered vitality from anxiety of mind, from chronic diseases, or from previous acute complaints, particularly the malarial; pregnancy and the puerperal state; or a combination of some of these; while the exciting cause in every instance I have known has been a direct chill when the body was overheated, or its power of resisting cold diminished by any such causes as have just been mentioned, or by exposure during the night, when the heat of the body is naturally lower. A few lines from my case-books will illustrate this.

E. P., a young lady, aged 22, goes to an evening party after a fatiguing day's sight-seeing; dances until well on in the morning; stands, when perspiring, at the door, awaiting her carriage; gets a chill, and the next day is laid up.

J. G., a gentleman, aged 28, has a hard day's work after the hounds on the Campagna, arrives much overheated at one of the gates, after sunset, dismounts there, and drives to his hotel in an open cab, without putting on a greatcoat. Two days afterward he shivers, and he has a somewhat prolonged fever.

F. S., a young lady, aged 17, just convalescing from bronchitis, sits at an open window one cold afternoon in December, gets chilled, and has the most severe attack yet treated by me.

The Rev. Mr. D., aged 30, reading with some Oxford students, has one of the headaches to which he is liable; and, after a long heating walk to get rid of it, he sits down, about sunset, on the grass outside one of the gates, and gets what proves to be a mild attack.

D. W., aged 19, a young gentleman, rising one morning in December with a stitch in his side—dry pleurisy it turns out to be—takes his cold bath as usual, does not react at all, and has also a mild attack, which masks the pleuritic symptoms entirely for more than ten days.

An exactly similar account of the origin of the complaint might be given in nearly all the forty to fifty cases mentioned.

It is certain that the young are much oftener the victims than those advanced in life, which partly arises from their greater imprudence, and partly from their greater predisposition to contract fevers. So much is this the case that, though quite as many, if not more, elderly people come to Rome, yet among my cases four only have been over forty years of age. So far as sex is concerned, the numbers have been pretty equal; and the severity of the attack has apparently depended more on the previous state of the patient than on the fact of the chill having occurred within or without the walls of the city.

Incubation.—This could not be determined in every case; but, in nearly all in which the time of getting the chill was definitely fixed, it did not extend over two or three days. In several, the first symptom—more or less decided shivering—began within a few hours. In the young lady mentioned, in whom the attack followed a bronchitis, the temperature was 102.2° within seven hours from the time of the chill. In another young lady, the shivering and headache began within a few hours from the time at which she had felt cold when sitting in a draught at an afternoon tea. In one gentleman (over forty), the incubation stage seemed much longer. He was ill for about eight days, with indefinite symptoms—loss of appetite; furred tongue; urine laden with lithates; evening headache and disturbed sleep, but no rise of temperature, pointing, as I supposed, to functional liver disorder, but quite unrelieved by the treatment adopted—when he was sent to Albano, where he became worse instead of better, and from which he returned after a few days with a well developed attack. At what exact period of his stay at Albano the fever first showed itself is uncertain. It may be objected, that the symptoms previous to the appearance of the fever did not, necessarily, constitute the incubation stage; but I incline to think they did, from the non-specific treatment adopted doing no good at all. In the other three cases of elderly people being affected, I was unable to fix the date of the chill. Indeed, two of the patients had been under the care of other physicians before I was sent for; and in the fourth I could not definitely determine the length of the incubation, which probably varies with the age and power of resistance of the patient, as well as with the dose of the poison. General languor, an inclination to sigh and yawn, insomnia, aching pains in the muscles, and loss of appetite, are symptoms common to the incubation period of all forms of fever.

Symptoms.—The fever begins, usually, with more or less decided shivering, but never, in my experience, to the extent of the chattering of the teeth, blueness of the lips and face, and shaking of the whole body, seen in an ague fit. Sometimes there is only the feeling of cold water running down the back, and occasionally nothing more than a little shuddering, or the sensation of goose-skin. In one young lady, aged 24, a prolonged syncopal attack was the first symptom, recurring more or less every day for about ten days, at the same hour. This daily recurring faintness I saw in another young lady, in whom the fever began in the regular way, with shivering. Neither of the patients had ever been subject to fainting fits, which obviously took the place of the cold stage of an ague. It may begin as a genuine intermittent, and take the subcontinued form. Baccelli asserts that it often does so, but I have never seen it among the strangers, though I have known it terminate both as a quotidian and a tertian intermittent. Headache is invariable present in the beginning of the attack, always frontal and quite distinguishable from the neuralgiæ of the ophthalmic divisions of the fifth nerve, superaorbital and ocular, which pressure on the supraorbital notch and on the eyeball, and the attempt to rotate the eyes, often prove to exist. Occasionally, the neuralgia is occipital; and

in one old lady, aged 65, violent unilateral neuralgiæ of the branches of the fifth and of the cervico-occipital nerves, of an intermittent character, constantly reappeared during a somewhat prolonged attack of the fever. The eyes are generally congested at the beginning, while, during the fever, the conjunctivæ become yellowish, as Baccelli also observes.

Few of the nerve symptoms were prominent, either in the beginning or throughout the complaint. Delirium was rare and transitory, except in my two youngest patients, aged 14 and 17 respectively. Slight confusion of ideas, marked listlessness and sleeplessness, were common to all, but no deafness, apart from that caused by drugs.

Temperature.—The thermometer shows a sudden and rapid rise of temperature, after the initial symptoms; from 102° to 105° being very commonly found quite early in the complaint, within a few hours from the shivering, for instance; and until means are taken to diminish it, either by cold applications or by the use of quinine, this increase of heat virtually remains unchanged. During the progress of the fever, however, there seem to be rapid fluctuations of temperature several times in the twenty-four hours, and the remissions are not invariably in the morning. Indeed, the temperature in several of my patients has been lower in the evening than in the morning, and that for many days consecutively; but, as all my cases have been treated with antipyretics, quinine, usually in large doses, the charts only indicate the course of the fever thus modified.

Case of E. P., an English lady, aged 23. First seen on the evening of the second day of the fever. The case was of average severity, and there were no complications. She was treated throughout with quinine, but not in quite such large doses as usual.

Days.	M.	E.	Days.	M.	E.	Days.	M.	E.
2	...	102.6	9	100.5	102.0	16	98.8	103.0
3	101.6	101.6	10	100.5	100.5	17	98.9	99.9
4	102.0	101.5	11	101.4	98.8	18	98.9	100.0
5	101.6	101.6	12	100.0	100.7	19	99.0	101.0
6	102.0	102.0	13	100.1	98 9	20	98.8	98.8
7	100.6	100.4	14	99.2	101.0	21	98.8	98.8
8	101.5	101.5	15	99.0	100.0			

S. S., aged 17, English. Case severe; complicated with constant vomiting at the beginning, and bronchitis from the tenth day of the fever. Subcutaneous injection of quinine from the fourth to the eighth days of the fever. Reported at length in the *British Medical Journal*, for April 1st, 1876.

Days.	M	E.	Days.	M.	E.	Days.	M.	E.
1	...	102.5	7	99.5	104.0	13	99.5	102.2
2	100.5	103.1	8	101.0	102.1	14	98.8	100 4
3	100.5	105.6	9	101.0	102.1	15	98.7	100.0
4	102.0	104.0	10	100.9	103.6	16	98.7	98.7
5	102.1	102.0	11	101.0	103.7	17	98·5	100.5
6	103.1	102.1	12	101.1	103.0			

A typical case ought to have the temperature indicated every few hours, but in private practice that is nearly impossible.

Circulatory System.—The circulation never seems so rapid as the rise of temperature would lead us to expect. Even quite at the beginning of the attack, the pulse is seldom more than 100 per minute, and as soon as antipyretics are absorbed, it falls, so that it is quite usual to find the heart beating only from 70 to 90, with a

temperature at from 101° to 104°. It is nearly always quicker in the evening than in the morning, but not more so proportionately than in health. Feebleness, irregularity, and intermittency have often been observed after the fever had gone on some time. Occasionally, there is congestion of the cutaneous vesicles of the face, neck, chest, and abdomen; and I have seen limited erythematous patches, in two or three cases, over the same parts; but there is no eruption characteristic of the complaint.

Sweating is a nearly constant symptom. As a rule, it has been moderate in amount and has come on in the early morning hours, but very often it has appeared at other times, without any apparent cause. In some patients it has been a symptom throughout; while in others it has first shown itself toward the end of the complaint. In only a few has it been so excessive as to require the use of water-proof sheeting to protect the bedding.

Digestive System.—The tongue, from the beginning, is covered with a thick white fur. I have notes of the occasional appearance of red, prominent papillæ at the tip, but never of its being red all over, nor of cracks or fissures on it at any time, nor of any hemorrhage from the tongue or gums. In one or two of the younger patients there has been epistaxis, and the lips have bled, but not to any extent. When the patient improves, the white coating begins to disappear from the tip and edges first. The mouth is rarely dry, and patients do not complain much of thirst. The appetite is lost, but nausea and vomiting are unfrequent, though in one severe case vomiting was the leading symptom in the beginning of the attack. The liver and spleen are both enlarged. The former organ is congested, and Baccelli believes there is probably catarrh of the bile ducts in many cases. I have, however, never seen jaundice; and, while the conjunctiva often becomes yellow during the progress of the complaint, the presence of bile in the urine has not been detected. The spleen is invariably somewhat larger than usual, but it seems to yield readily to the action of quinine, as only in one case did it assume great dimensions and project into the epigastrium. It was then very tender to the touch, and pressure on it excited severe retching. But though there may be exceptional cases, the rule seems to be that the spleen does not enlarge to the extent described by writers on intermittent and remittent fevers. In microscopical examinations of the blood, no excess of leucocytes has been found, or any of the pigment particles which other observers have noticed. In the bowels there is little noteworthy. Constipation seems the rule, necessitating purgatives, and sometimes very strong purgatives. When there has been diarrhœa, it has been of a bilious character; more bile escaping from the congested liver, or the reabsorption in the bowels being more sluggish. No pea-soup stools occur, nor general or localized tenderness on pressure over any part of the abdomen except the epigastrium, or over the liver or spleen, if enlarged. Occasionally there is slight meteorismus, but, as Baccelli notices too, it is never persistent. At the beginning, the urine is acid, scanty, of high specific gravity, and filled with urates. As soon as treatment takes effect, it becomes neutral or alkaline, clear, and with only slight deposit of epithelium and of phosphates, but the chief microscopic feature is the nearly constant presence of pigment particles. Analyses of urea have been made, but are not yet worth reporting. Albumen has scarcely ever been found: a fact in marked contrast to my observations in enteric fever here.

Course.—This fever seems to have no definite duration. The shortest of my cases —a gentleman aged thirty-nine—was apyretic on the seventh day, and continued so; but I suspect he had fever two days before I was sent for. The longest case lasted

thirty-six days; but this was due to a relapse, as the patient, a young lady, was without fever from the seventeenth to the twenty-second day. The termination of the case is often indicated by the gradual cleaning of the tongue, by the fever assuming a true remittent or intermittent type, and by an increase of the perspiration in the morning hours; and if this be excessive, the temperature has been frequently found subnormal at all hours of the day. Very rarely do anything like critical deposits occur in the urine.

Complications.—Two patients had unilateral pleurisy, with considerable effusion, which, however, disappeared quickly. One, a lady, aged fifty-one, had pleurisy and endocarditis, and only slowly recovered. One patient had bronchitis, and one thrombosis of the left leg. None of my own patients had any other complication; but one lady, aged twenty-eight, whom I attended as consulting physician ten days after the fever began, miscarried at the eighth month, and died from *post-partum* hemorrhage. Baccelli describes complicated cases as special forms of the fever—the bilious, the rheumatic, the pneumonic, etc.—but I know nothing of these.

Prognosis.—None of the forty-five patients treated throughout by myself died; and only three—the two youngest treated and the lady who had the complication with pleurisy and endocarditis—were very dangerously ill. One young gentleman, aged eighteen, whose temperature was 102.4°, insisted on getting up on the tenth day, and went out for a walk. He repeated this on two subsequent days, was none the worse, and was apyretic on the fourteenth day. Some of the patients had been delicate, and were traveling by the advice of physicians, but none had any well defined chronic malady. In uncomplicated cases, therefore, in average health, the prognosis is very favorable

Diagnosis.—The only other fever with which this could easily be confounded is a mild enteric fever, as they certainly have some features in common; but the short incubation, and the rapid rise of temperature, even to 104° soon after a chill, seem almost absolutely to exclude the idea of sewerage poisoning. The response of the fever to treatment, its indefinite duration, and the total absence of any eruption like that of enteric fever, with the negative character of the bowel symptoms, seem quite as certainly to disprove the existence of any specific intestinal glandular lesions, even if the *post-mortem* examinations made by others were not quite satisfactory on the point, hyperæmia of the Peyerian patches being the utmost that is found; while the frequent termination of the cases as remittents, or even as genuine quotidian and tertian intermittents, seems quite as eloquently to prove its origin from malaria alone. Enteric fever, indeed, is as marked in its features in Rome as in London. I have lost five out of fifteen cases, two from bowel hemorrhage; and the abdominal symptoms have been prominent in all. It is obviously essential to distinguish the two fevers, as an early and energetic specific treatment undoubtedly lessens the severity and shortens the duration of the malarial form; whereas, if neglected in the beginning, it becomes rebellious to remedies and very tedious in its course. The prognosis, too, is very different, and it is probably from the two fevers being constantly confounded together that Rome has acquired its unenviable reputation for typhoid; whereas, as I have shown in the *British Medical Journal*, for September 16th, 1876, fewer cases of enteric fever originate in Rome, in proportion to population, than in any other large continental city.

The subcontinued type of the fever described, and the rapid variations of the temperature, distinguish it clearly from the malarial remittents of British authors;

but it frequently passes into a remittent fever. For other fevers it could not well be mistaken.

Treatment.—When the ordinary antipyretic mixtures have been given in the beginning of these fevers, they have had no appreciable effect, except, perhaps, in making the pulse a little slower. A good purge is usually given, the much abused calomel very often, and then quinine in some form. At first, it was given in small and divided doses; two grains every two hours, or three to four grains every four hours. But most of the patients have had the drug in one or two large doses in the forenoon, or at least before 2 P.M., if possible, although the thermometer too often fails to show a remission at that time. Unless the patient's objections are insurmountable, the quinine is given in solution. Formerly, it was combined with bromide of potassium, or alkaline mixtures were given at the same time. Now, I almost always use the hydrobromic acid, as recommended by Dr. Milner Fothergill. Both the bromide and hydrobromic acid counteract, to a certain extent, the unpleasant effects of large doses of quinine; but the hydrobromic acid is much the more effectual of the two. The headache, neuralgia, malaise, and general aching pains either disappear altogether, or are much alleviated, as soon as the patient comes under the influence of the quinine. It notably slackens the pulse and lowers the temperature. Fifteen grains will bring the pulse down from five to ten beats, and the temperature from one to three degrees, within two hours of its administration in solution. The average amount given in the beginning is from fifteen to thirty grains daily. I have found no patient intolerant of the remedy, even when their repugnance to it has been based on the opinions of the leading physicians of Great Britain and America. Most of them, after the first doses, are too sensible of the benefit derived to doubt the fact that the disease indicates the means of cure. If the patient will not take it in solution, it is given as a powder, in a rice-wafer, followed by some drops of nitric or hydrochloric acid. Quinine enemata have rarely been used, and subcutaneous injections of the drug were necessitated in only one case, by constant sickness, and by the young patient not tolerating the enema syringe. Cold applications, too, are always used. Frequent cold sponging of the body, the ice bag to the forehead and back of the head, iced compresses over the spleen, are all useful. Tepid baths rapidly reduced in temperature were required in a boy aged fourteen, who was very delirious. They were given eight or ten times with excellent results. The diet is restricted to fluids; and stimulants are seldom needed, except during convalescence. Salicylate of soda has been given in doses varying from thirty to ninety grains at short intervals; and, in the forenoon hours, if practicable, sixty to ninety grains have nearly the same power in reducing temperature as fifteen or twenty grains of quinine, but the effect seems to disappear more rapidly. Salicin, tincture of eucalyptus, and Warburg's tincture, have also been used; but little reliance is placed on anything but quinine.

Recurrence.—It is uncertain whether this type of malarial fever tends to recur. In those patients whose history, subsequent to the fever, is known, it has not done so. If it did, it would probably be as some variety of intermittent fever. No injurious sequelæ have come under my notice.

Frequency of Occurrence Among Visitors.—It is obviously impossible for any one physician to give an exact idea on this point. The fever goes by so many different names—Roman, bilious, nervous, gastric, typhoid—that it is very difficult to know when it is the type described that is meant. Besides, there are no proper data for calculating the number of visitors in a season.

IV. LOCAL DISEASES.

(*a*) DISEASES OF THE RESPIRATORY SYSTEM.

On the Treatment of Phthisis.

On this important subject the following remarks are made in the Dublin *Journal of Medical Science*, December, 1877, by Dr. THOMAS HAYDEN:—

I cannot subscribe the *dictum* of Laennec:—"The tubercular affection, like cancer, is absolutely incurable, inasmuch as Nature's efforts toward effecting a cure are injurious, and those of art are useless." Notwithstanding this oracular declaration, Laennec has admitted the curability of phthisis in the third stage, and given several examples of cicatrized tubercular cavities. Many similar examples have been since published; Dr. Quain and Dr. Hughes Bennett have recorded several such. I have myself met with a few; one of these, a young lady of seventeen, and a member of a family of whom several had died of phthisis, had a distinctly pronounced cavity in the apex of her left lung, ten years ago. She went down to the South of Ireland, as I supposed, to die. Some years later her health was comparatively good; and when last I saw her, a few months ago, she had become a robust matron, enjoying the most perfect health.

The disease is, at an earlier stage, even more curable by encapsulation and cretification of the deposit. Of this I have witnessed several examples. These boxes exhibit indubitable evidence of cured phthisis in four instances; they contain cretified tubercle expectorated by phthisicals in different stages of the disease, and two of them are perfect casts of an air-sac and its alveoli. In the fifth is presented, for comparison, a cretaceous particle discharged by a gentleman from a crypt of one of his tonsils, causing him much alarm

Suitable change of climate is, *par excellence*, the remedy for phthisis. A long journey by sea is also of the highest value, and in many instances it has been known to effect a complete cure. Of medicines, cod-liver oil is the best, and of aliments, fats of every kind. Where cod-liver oil cannot be borne (and there are many such cases) I have given arsenic, after food, in small doses (3 to 5 ♏), alone or combined with one of the ferruginous syrups, or with Parrish's compound syrup of phosphates, after food, as suggested by the general condition and the special symptoms. I have been induced to make trial of arsenic, in cases especially characterized by great and rapid wasting, from the remarkable results recorded of "arsenic eating" in Styria, and I am satisfied it is of great value so given. Rich cream is likewise a good substitute for cod oil. Dover's powder, given in five-grain doses once or twice in the course of the night, is the best remedy for night sweats.

Tobacco Smoking in Relation to Lung Disease.

In an article on the benefit of sea voyages, Dr. C. FABER, of Stuttgart, writes to the *Practitioner*, November, 1877:—

Is smoking injurious to an invalid? I say no; provided the mucous membrane of his soft palate, and his heart are not so excessively irritable that troublesome cough and palpitations would be induced.

The tobacco smoke, when sucked in by the act of smoking, does not, as a rule, pass beyond the cavity of the mouth, being prevented therefrom by the closure of the faucial arch. In fact, if one directs his attention to it he may feel the move-

ment. Some people can close the fauces at pleasure, and with their mouth open. One can then see, not only how the two halves of the arch approach, so as to shut the uvula tightly in between them, but also how the soft palate descends *in toto*, and the roof of the tongue rises. This will easily be understood by remembering that the glosso-palatine muscle is a complete and genuine sphincter.

This explains how one may take a deep breath through the nose while the mouth is full of smoke without any of it getting down into the respiratory passages along with the inspired air, or how one may keep his cigar or pipe in the mouth during a quarter of an hour's talk without his throat being once irritated by smoke, though, for other reasons, I do not approve of this custom. In the latter case the inspirations will be all through the nose, the palatine arch being only opened so as to let the expirations pass that carry the vocal sounds, but being afterward promptly shut again. Were the arch not shut, and any smoke allowed to pass beyond, into the pharyngeal cavity, it must be expired equally through the nose and the mouth. Some people are, indeed, able, or even in the habit of doing so. Then, both the glosso-palatine and palato-pharyngeal arches are voluntarily opened, and the smoke blown out, either through the nose alone, or through nose and mouth. Nor will any smoke pass beyond the cavity of the mouth at the next full inspiration following each puff, or enter the laryngeal and bronchial canal, thereby irritating their mucous membrane, if the smoke has been blown out promptly and completely. Thus it will be, if it is expelled, not by one or two short puffs, but by a regular expiration immediately following up the puff, however short; I, therefore, would advise invalid smokers to combine expiration with the puffing out of the smoke.

While the respiratory organs are thus effectually protected from its irritating local effect, the mucous membrane of the mouth, including that of the soft palate, is fully exposed to it. Three different consequences of this local irritation occur to me. First, with many habitual smokers the mucous membrane of the cavity of the mouth, particularly that of the tongue, is found in a state of chronic catarrh. In such cases, and they are very frequent, it would, by the way, be wrong to draw any conclusion, from the appearance of the tongue, regarding the condition of the stomach. I do not consider this catarrh of much consequence. The sense of taste is likely to become somewhat blunted by it, and also the appetite. This latter effect is, however, much rather a direct than a secondary consequence of tobacco smoking.

Secondly, profuse salivation is induced in many persons, especially by smoking pipes. By some this is considered a rather serious loss, apart from the nasty spitting it makes necessary. For my own part, I do not think that the loss of a pound or so of saliva will do much harm.

The third and most interesting point relates to the effect which the irritation of the soft palate by the tobacco smoke has on expectoration. Besides the fifth and glosso-pharyngeal nerves, the mucous membrane of the soft palate is supplied by the pharyngeal branches of the vagus. These, together with the superior laryngeal, are the nerves the irritation of which induces reflexly the acts of coughing, swallowing, and vomiting, which are, therefore, in close sympathetic correlation. This being so, one might even think of partly supplanting the internal use of expectorants and emetics by devising some method of irritating those nerves, which are easily accessible. I have not yet, however, tried this plan practically.

After what has been said, one will understand how smoking, instead of, according to a common prejudice, being injurious to the respiratory organs, may, on the

contrary, prove in many cases a capital expectorant. I have been told by asthmatic* people that, while on getting up they felt a great deal of oppression on their chest, they were much better after their morning smoke, which induced expectoration of the secretion that had accumulated during the night. I have also seen patients, even in the third stage of consumption, smoke away at their pipes almost all day long without any harm coming from it, but, on the contrary, with marked relief of their local complaint.

From these physiological relations of the vagus another beneficial effect of smoking can be understood, viz., that it helps digestion. A person acccustomed to smoke a cigar or a pipe after meals will find that his stomach is not in regular working order until, by the usual smoke, its peristaltic motions are made more lively. I have also seen a great many instances of smoking acting as a regulator to the bowels, which is particularly valuable at sea, where, as we have seen, a disposition to constipation is very common.

When I say, therefore, that a consumptive invalid may smoke without any harm arising from it, I am only speaking of the local effects of the habit, particularly those on the respiratory organs, but not of its effects on the nerve centres, the latter being materially the same in a consumptive and in a healthy individual. As I do not here take into consideration the pharmaco-dynamic effects of smoking in general, the merits, or otherwise, of smoking, in that respect, must be left to themselves. I only mention as a curiosity that, by certain enthusiastic advocates of that habit, some of the finest products of genius the world has ever seen are ascribed to its being inspired by tobacco smoke.

It cannot, however, be denied that, under certain conditions, smoking, or rather tobacco-smoke, has an injurious effect upon the respiratory organs, and through them on the blood, viz., when the smoke cannot escape by getting diffused in the open air, and carried away by the wind the moment it is blown out, but accumulates in shut up localities, smoking rooms, etc., and thus is inhaled again and again. Under such circumstances tobacco smoke is, moreover, found rapidly to undergo alterations in its chemical composition, the products of which are not only so unpleasant to the smell as to cause nausea, or even fainting, in some nervous individuals of the weaker sex, but no doubt are also more injurious to the respiratory organs and the blood than fresh tobacco smoke.

The Relations of Hæmoptysis to Phthisis.

That, sometimes, violent hæmoptysis may result in recovery, is exemplified by some cases quoted by Dr. POWELL, in the *Lancet*, December 1st, 1877.

One, that of a man who, four years ago, was in the ward with a large chronic cavity in the right lung; he had the most desperate hæmoptysis, repeated daily for many days, and occasionally again breaking out, for three months. He remained in the hospital for six months, and then returned home with his pulmonary disease arrested. He was admitted again last summer, after an interval of two years; he had had no return of the hæmoptysis, and he again left the hospital after three months, without any further attack.

Another patient I had hoped to have brought here to-day, an engine-fitter, of sanguine temperament, aged thirty-five, who five years ago, when an out-patient under my care, had very copious hæmoptysis recurring daily for many days together, then

*I do not here take asthma in the restricted sense of dyspnœa caused by nervous spasm, but in the common sense of shortness of breath, from different causes.

being arrested for a few weeks, during which time the patient, who had a small limited cavity at the summit of the left lung, would rapidly regain flesh and make blood; then his hemorrhage returned in the same way, repeatedly bringing him to the verge of death. By keeping him on a very restricted diet for some months these attacks diminished; the pulmonary symptoms subsided, he resumed work, and was in fair health a year ago, and is so, I believe, at the present time. In both these cases there can, I think, be little doubt that the hemorrhage arose from pulmonary aneurism. Another characteristic point about these hemorrhages—which must, however, be taken with other symptoms—is, that no elevation of temperature precedes or attends them. The temperature is commonly reduced by the shock of the hemorrhage, and sometimes it may rise, after three or four days, from secondary inflammation of the lungs or bronchi, set up by the inhaled blood. But, as a rule, these cases are not attended by fever, and, therefore, differ from the more usual hæmoptysis occurring at the earlier periods of phthisis, or when, in the later stages, due to fresh outbreaks of the disease.

The prognosis of hæmoptysis from cavities is, of course, always very grave, and the more quietly things have been going on previously the more guarded must our prognosis be, for these are just the cases in which such hemorrhage may most likely be due to an aneurism.

The treatment is such as would be dictated by common sense. The most absolute rest in bed is imperative. Beware of the brandy bottle. The first thing the friends of the patient naturally do, when they find him faint from hemorrhage, is to give him brandy. But this moment of faintness is just the period at which there is the opportunity for the hemorrhage to become staunched by the formation of a coagulum, and so long as the pulse does not absolutely fail, we should withhold stimulants, and avoid them throughout the treatment of the case. We can scarcely expect drugs to do much in such cases as these. Ergot, in full doses, and turpentine, have been found most useful at this hospital. The momentary application of an ice-bag to the chest or between the shoulders, appears sometimes to be useful. When the shock is great, opium will best relieve it. After a day or two, if the exhaustion and anæmia be great, an astringent form of iron is often of great value, as the iron alum or the pernitrate of iron, but the effect of these remedies must be closely watched. In cases in which there is a tendency to recurrence of the hæmoptysis, such patients usually making blood fast, the diet should be carefully restricted, principally to fish and farinaceous food, without stimulants.

The Management of Pleuritic Effusions.

Several valuable articles have appeared on this subject within the last half year. We begin with one of Dr. T. CLIFFORD ALBUTT'S well-written studies, in the *British Medical Journal*, November 24th, 1877:—

It appears to me that our first duty is so to divide pleurisies into classes as to enable us to know more clearly what we have to deal with, and thus to avoid much of that controversy which gathers about ill-defined propositions as parasites gather about ill-nourished tissues. Although no hard lines can be drawn around them, yet the following divisions are fairly recognizable if we disregard transitional cases.

1. Dry pleurisies, in which the tubercular may be included.
2. Acute effusive pleurisies, in which the rheumatic are included.
3. Quiet effusive pleurisies in the serous stage.
4. Empyemata.

5. Pleuritic dropsy.

Of Class 1 I have now nothing to say. The tubercular pleurisies are at times effusive, but the exigencies of individual cases are too various to be here considered.

Class 2. Acute effusive pleurisies are those of an actively inflammatory kind, which make themselves sharply felt from the beginning, by pyrexia and pain. The treatment of such cases seems to me to be clear. It is this. At the outset, that is, within twenty-four or forty-eight hours, at furthest, leeches should be liberally applied to the parts, according to the forces of the patient, and a poultice applied, to receive the bleeding. As soon as the bleeding has ceased, the affected side should be bound down by strapping, after the manner best described by Dr. Roberts. Of medicines, I advise a mild saline purgative at the beginning, followed by the use of mercury and chalk combined with Dover's powder in fractional doses, or in weakly patients by the use of Dover's powder alone Between these powders I give a mixture containing acetate of potash and large doses of liquor ammoniæ acetatis. By this method I obtain far better results than were wont to follow my expectant treatment of former years. The fibrinous effusion which issues in these cases almost always subsides when it has reached its height; and, if this height be the height of the spine of the scapula and the fourth rib, I am for this reason never in haste to interfere by operation so long as the patient breathes in tolerable comfort, and the other lung is well at work. On the other hand, if the patient be uneasy, or if the entry of blood to the right heart be hindered, I do not hesitate to tap at once. The favorable aspect of operation in such cases is that suppurative conversion rarely occurs in these highly organized effusions, even if air enter the pleura. Once, in a case of impending death from double rheumatic pleurisy and pericarditis, all with effusion, we, being in haste, did not hesitate to plunge a bistoury into the fuller pleural cavity, and to allow the effusion to escape as it might, relying on the highly fibrinous quality of it, which did not tend to suppuration. The wound soon closed, and the patient did well. Such effusions, being full of clots, are often difficult to remove by small cannulæ, or even to exhaust by aspiration; if opportunity permit, however, the proper plan is to use the aspirator with fine cannulæ, and to puncture the pleura repeatedly, drawing off what is to be had at each point. It is better to do this than to fumble in the first puncture, and the patient and his friends must be prepared beforehand for the probability of repeated punctures; I repeat, however, that operation is rarely needed in acute fibrinous pleurisy, and that its exudations, even if profuse, tend, for the most, to steady reabsorption. If, when all fever is past, such an effusion linger at its height, or linger after a partial ebb, the use of a blister or repeated blisters certainly favors its removal. It is better to repeat the blisters than to allow the first or any one of them to proceed to full vesication. Sometimes, indeed, these measures may fail, and abiding dullness, silence, and immobility in the affected side will continue. Such a condition is often treated with indifference, and no doubt some time may elapse before such a side is completely restored to its normal state; nay, more, it is rare that the marks of such a pleurisy vanish as they came. More often they remain for years, or even for a lifetime. But, on the other hand, if the dullness and other signs be considerable, I am very unwilling to treat them with neglect, for such conditions may end in serious impairment of the lung, and even in chronic interstitial fibrosis of the lung. It is my practice, therefore, and I speak from some experience, as pleurisy is very common in Yorkshire, to put the patient under a course of mercury rather than allow this morbid state to remain. A combination of the bichloride of mercury with iodide of potassium and

bark or iron may be given fearlessly for weeks, and will rarely fail to promote the removal of the remaining products of the inflammation and to restore health and activity to the affected organs. Such a course must needs be given most carefully, and the patient, on the conclusion of it, advised to take sea air and tonic medicines. Routine drugging, pursued in ignorance of the natural course of disease, very rightly was displaced by expectant treatment; yet I fear that expectant treatment, having now helped us to learn more clearly the ways of disease, has, in its turn, sins of omission to answer for, as great, or greater, than the sins of commission laid at the door of the apothecary.

I will now pass on to Class 3—quiet effusive pleurisy in the serous stage. Although the acuter pleurisies may run to large effusions and to effusions poor in fibrin, yet we more commonly see the larger and poorer effusions in cases where the pain has been trifling and the pyrexia moderate, if more continuous. A daily evening rise of two degrees is easily overlooked by the physician, and easily regarded by the patient as mere malaise. Such patients, with one moiety of the chest full or nearly full of water, are treated with tonics to relieve debility and anæmia, or are sent to watering places to recruit their strength, until, perhaps, their actual state is revealed by accident. If such effusions come on slowly, as no doubt they often do, the sufferer may complain of but little more dyspnœa than is common to most weakly persons, and one patient who consulted me was able to lie on either side and to sleep on either side, although his left pleura was crammed with effusion. On the other hand, such effusions may come on with great rapidity, and destroy life by the sudden dislocation of parts. Such cases, however, are not likely to be misapprehended; as, although fever and pain may be slight or absent, the dyspnœa compels a minute examination of the chest. But let me earnestly impress upon my brethren a warning which, sounded again and again, has not yet aroused the profession to a full sense of the perilous condition of those whose chests contain large effusions. Where the water floods the chest in a few days, or hours, the alarm may be taken, it can scarcely be neglected; but those whose effusions have gathered more stealthily are in as great danger, if time pass and no precautions be taken. One terrible warning in my earlier life taught me this lesson, while it turned my heart to the search for help to these sufferers. While yet upon the threshold of my medical studies, I was standing on the terrace in front of Addenbrooke's Hospital, waiting for a young girl who had descended from a market cart and was walking, slowly it may be, but firmly, towards the house. She had crossed the green, when suddenly a cry escaped her and she fell dead at my feet. The porter and myself raised her, and gave restoratives in vain. She was gone, and the cause of her premature and sudden end was the effusion of fluid into the left pleural cavity. Now, shocking as this was to one who saw it, it is by no means an uncommon accident. At least thrice in my experience at the Leeds Infirmary have patients thus fallen dead from the same cause, and some instances of the like have come before me in my private practice. Let him, then, who hesitates to tap the pleura remember that, before his next visit, his patient, seemingly so tranquil, may have passed into the deeper stillness of death. Whether the effusion, then, be rapid or be slow in its flood, if the cavity be full, operate without delay. This is, I believe, one of those golden rules to which there is no exception. If the effusion be below the capacity of the pleura, immediate action is less imperative. Speaking of myself alone, I have never seen death by syncope, except from a full pleura, though I presume such a death is possible. It depends, no doubt, on a dislocation of the heart and great veins, such as to form

clot, or directly to impede the filling of the auricle or auricles; and I believe such pressure is rarely exerted to any degree, until the compression of the lung has reached its limit. Still, I shrink, even before a patient at his ease, from allowing the breadth of three fingers to stand between him and death. A sudden swelling of the tide might occur even in the night, and help be absent. Moreover, the continued pressure of such exudation, by soddening, injures the lung, or by extending adhesions, favors the permanent imprisonment of this organ, or by its own deterioration, drifts towards an empyema. Nevertheless, with a patient of good promise, with fairly full arteries and respirations under 30, and whose exudation reaches no higher than the scapular ridge behind and the third rib in front, I counsel delay, warning the patient against rising up suddenly, and instructing his attendant to call the doctor, in case of more rapid breathing, or a change of complexion. If the patient be able to take solids, I advise a dry diet, gentle saline purgatives, such as Hunyadi water, and syrup of iodide of iron with digitalis. Mercury I withhold, save as an occasional alterative. I do not strap the chest, as I prefer to be able to apply repeated blisters, stopping short of vesication. These quiet effusions are, however, hard to move, and so often increase, that one is not sorry to have to operate, and thus to shorten the duration of the case. In my inmost heart, I believe it will be found better in the end to tap all cases where more than two pints of fluid are present, as the results of medicine alone in quiet effusions are very tedious and unsatisfactory. An operation upon the chest is, however, as yet too unfamiliar and too dreadful to the public to permit us to return to it hastily; and in these cases there is the not inconsiderable risk of so setting up an empyema, a risk nearly absent in mere fibrinous effusions on the one hand, and in mere dropsies on the other. It can scarcely be doubted, however, that tapping of the pleura, as it becomes better known and the procedure more perfect, will be applied to those smaller effusions which persist in spite of a short course of nursing and medicine.

In now confining myself to the larger effusions, let me again repeat, formally and unmistakably, that physicians must admit that the medicinal treatment of the larger quiet effusions is, on the whole, a failure, and where it succeeds runs the risk of injury to the lung, of empyema, and even of sudden death. Not only so, but pleuritic effusions in the right cavity, by pressing upon the vena cava and twisting it upon the heart, are not uncommonly attended by dropsy in the legs and elsewhere. On the other hand, my own experience of operation in large serous effusion is very favorable; and, if I confine myself to simple cases and early operation, my results have been excellent, and have converted a serious malady into a moderate indisposition. Over and over again, by this procedure, is fluid removed in bulk from the chest by one operation needing no repetition, and rapid recovery is obtained.

In opposition to some writers, I find that the chances against reaccumulation are, in cases of early operation, very moderate, and even small; and unless pus be formed, a third operation is, in my experience, quite rare. Add to this, that an illness of three months is reduced to an illness of three weeks, and the merits of early operation are even more convincing. The longer, however, operation is deferred, the less confidently can the best results be hoped for, the more danger of formation of clots and of empyema, and the more the danger of injury to lung and constitution.

The aspirator, which is valuable in highly-fibrinous effusion, is even undesirable in serous effusion. It is better to allow the lung to expand at its own pace, and not to draw off more fluid than the lung can at that time replace. Even a partial relief of this kind generally leads to absorption of the remnant, and does not lead to severe

cough and albuminous expectoration. Nor do I like instruments with angles in them, which are liable to become clogged. A fine trocar and cannula, the latter attached to a long flexible tube, through the wall of which the trocar should be passed on the distal side of the shoulder, is the best instrument. The tube closes upon the trocar as it is withdrawn, and no air can pass beside or after it, if carefully managed and the trocar be two-edged. A bayonet-pointed trocar wounds the tube too much. The instrument should be well carbolized before insertion, the tube filled with carbolized water, and the end immersed in a basin of carbolized water. By raising or lowering the basin, the syphon action may be increased or diminished at will. It is as well to keep a spray in motion about the puncture until all be over, and the orifice closed with antiseptic dressing.

Now, of this simple operation, our Yorkshire experience is so large that I may permit myself to marvel at the fear or hesitation which it excites, even in the medical breast, and, moreover, to doubt the reality of those untoward consequences which are said at times to follow it. That, if the operation be long deferred, its success is less sure, needs no reiteration; that a person in whom syncope is imminent may not always avert that syncope by operation, especially if the fluid be aspirated rapidly, is possible; that a tendency to clot, or the establishment of clot, in the central blood vessels, is always to be feared in long-standing cases; that a patient honeycombed by disease may die coincidently with, or even consequently upon, the smallest operation, is certain, but who is to be deterred by these events from taking the course of operation in a promising case? In a paper like the present, we cannot discuss rare exceptions; we can only lay down general rules.

I will now pass on to Class 4—empyema. With empyema, operation of some kind is inevitable, and as, encysted empyemata apart, a pus-containing pleura means a full pleura, and as again we have decided that all full pleuræ are to be tapped promptly, there can be no difficulty in the matter of diagnosis. The presence of œdema in the wall of the thorax, however, will generally tell when the contents are purulent. That an encysted empyema may dry up is possible; but, if it does, it leaves caseous matter behind, which may become a source of general poisoning—tuberculous or other—or it may remain latent for years and finally cause death, as in the case of a patient who died lately under my observation. In his case, the necropsy showed that an encysted empyema of ten years' standing was the cause of death, by perforation of lung, etc., although apparent complete recovery had taken place at the end of the original illness. If I have one conviction in medicine more urgent than another, it is this: if pus or other septic material be present in the body, we must not rest until it is removed. I, therefore, dislike and reprobate all temporizing with an empyema. Out with it, and provide against the chance of reaccumulation. We are advised by some persons to draw off an empyema by repeated aspirations.* I have seen two successful cases, so-called, of this practice. One spat pus within a month of his recovery, and the other died of hectic. Twice I have seen pus spat up while the systematic aspirations were carried out. I would not trust any reputed recovery under this plan till the patient had been watched for years. My two objections, and these complete ones, to repeated aspiration are: 1. Aspiration does not prevent the formation of a pulmonary fistula; 2. It does not prevent absorption, but rather favors it. By the pressure of a full cavity, absorption is often prevented and fever absent;

* I mean here aspirations as the chest refills. On the other hand, the more recent proposal to aspirate every other day, or at very short intervals, is, in my opinion, well deserving of careful trial.

draw off some of the pus, you relieve pressure, and absorption begins. I put before you charts illustrative of this; from them you will see that by complete drainage alone fever is averted, and by the presence of fever, after operation for empyema, I detect, at once, a defect in the operation or a defect in the nursing. By a free opening at the lowest point of the cavity, and as far back as possible, the pus must be run out, and complete drainage secured. The whole must be done under the antiseptic method, and antiseptic dressing continued. I have rarely found injections of any value, and should only resort to them in case of very fetid retained material, and should then use them of the mildest and simplest kind. But this plan, it is said, means a three months' illness, and, perhaps, death by exhaustion. Be it so, and be it remembered that empyema taking its own course is a three years' illness, and death, probably, at the end of that. Nor can any sleight of hand make a huge internal abscess anything but a terrible infliction. I can only say that the miserable broken-down creatures who seek shelter in a hospital are generally cured completely in twelve or fifteen weeks; and that in private practice I have never yet lost a reasonably favorable case. As the cavity contracts to small dimensions, the drainage-tube must be shortened. If a pulmonary fistula have formed before the patient comes under treatment, a counter opening must be made and the chest drained, as in other cases.

Class 5—Pleural dropsies. These being often dependent upon disease elsewhere, and, therefore, often double, puncture should be used only in case of urgency. Fortunately, in these cases, operation is of the simplest kind. There is no fear whatever of pus formation, and the water may be allowed to run through an unguarded trocar, as in the case of ascites. At the same time, if circumstances permit, it is well to form an antiseptic atmosphere around the opening.

Thoracentesis by Aspiration, in Acute Pleurisy.

In a paper in the *Gazette Hebdomadaire*, November, 1877, Dr. DIEULAFOY, the inventor of the aspirator, lays down the following conclusions:—

Thoracentesis by aspiration in acute pleurisy is an insignificant operation and absolutely inoffensive. It should be practiced with the needle No. 2, and the quantity of liquid removed at a séance ought never exceed 1000 grammes. The accidents of which it has been accused are of different kinds, and may be divided into three categories. Those of the third category (the so-called transformation of a serous liquid into a purulent one) cannot be imputed to the thoracentesis; for I believe I have demonstrated that this is due to a natural evolution of legitimate purulent pleurisies, and in nowise to an induced transformation of their liquid. The accidents of the second category (syncope, asphyxia, hemiplegia), due to autochthonous or migratory coagula of the heart and pulmonary vessels, or supervening under the influence of other causes (as pleuro-pulmonary gangrene, and the general condition of the individual), should not be placed to the account of the thoracentesis, since they are met with in the course of pleurisies before as well as after thoracentesis, supervening on the fact of the pleurisy itself, and not on the fact of the operation. The incidents of the first category (acute œdema of the lungs, and pulmonary congestion with or without albuminous expectoration) are the only accidents which are directly and truly imputable to thoracentesis; but they are also precisely those which may be easily avoided and prevented. On the investigation of all the examples of this class of accidents, I find that they have always been associated with either the immediate evacuation of a large quantity of liquid, or with pleurisies

complicated with affections of the heart, bronchitis, tuberculosis, etc.; and the precept is to limit the quantity of liquid extracted at a time, and to proportion this to the complications which may exist. The operative procedure being fixed and invariable, there is nothing variable but the indications of thoracentesis, and these are summed up in two words—the thoracentesis is either urgent or it is discussionable. The urgency of the operation is entirely dependent on the quantity of liquid effused, viz., when this amounts to about 1800 or 2000 grammes in a well-formed adult. In discussionable cases, where such amount does not exist, we should await the termination of the febrile stage, and aspiration should only be resorted to when the absorption of the liquid is slow and difficult.

In the Edinburgh *Medical Journal*, November, 1877, Dr. JOHN HADDON remarks:—

When in pleurisy we find that effusion ceases, we may conclude that an effort is being made, or about to be made, to remove it by the natural process of absorption. While the effusion is progressing no good would be likely to follow aspiration, and there is no call for interference unless the fluid is so copious as to render its removal necessary for the safety of the patient. When absorption is taking place, it is astonishing how quickly fluid can be removed. If absorption is not going on naturally, I think we have good reason to be skeptical as to the power of any remedies to originate that process; and therefore it seems right, as soon as we have learned that effusion has ceased, and that absorption is not going on, that the aspirator should be used, and as much as possible of the fluid removed. As to the time at which we should operate after effusion has ceased, opinions may vary, but I believe that those who operate soonest will have the best results. When one pleura is full, as indicated by universal dullness, I should be inclined, if there were no urgent symptoms, to allow the fluid to remain twenty-four hours before operating. In any case, if absorption was not active and unmistakable, on the second day from the cessation of effusion, I would use the aspirator.

I am not aware of any cases which have been published showing that early removal has in any way interfered with the recovery of a case of pleuritic effusion, nor am I aware of any observations as to the length of time for which a lung may be flattened against the spine by effused fluid, without being rendered unable to resume its function; but it is reasonable to suppose that the earlier the fluid is removed, and the sooner the lung is allowed to expand into use, the less danger there will be in removing either a part or the whole of the fluid effused. So I think we may conclude, that the earlier the aspirator is used, the less is the danger from the operation itself, and from what I have observed or read, the greater is the chance of a speedy and perfect recovery. The dangers from fluid remaining in the pleural cavity are—1. That the fluid becomes purulent; 2. That adhesions may be formed which bind the lung so as to render it forever useless; and 3. That the pleura itself becomes so disorganized that it cannot again resume its proper function; and surely they are sufficient to deter every conscientious practitioner from allowing any noticeable quantity of fluid to remain in the thorax, whence it can be removed with such safety, ease and expedition. If after the first operation re-accumulation should take place, the same principle ought to guide our practice. If this principle of treatment was universally adopted, we would hear of fewer cases of death from empyema. The general practitioner, knowing that more than

expectant treatment was required at his hands, would, if he had any difficulty in diagnosis, ask for assistance early in the case, knowing the dangers of delay.

Having now considered the principle that ought to guide our practice in acute effusion, let us suppose that in a case aspirated, either early in its history or late, the fluid is found to be purulent, and consider what course we ought to pursue.

Looking again at nature's attempt to restore health, we find that the best possible course is, when an opening is established through the thoracic wall, allowing the pus to drain away. When an opening is effected through the parietes, I believe it most frequently occurs in front, probably because in that situation the pleura is thinner, the bulk of the fibrin having been deposited on the posterior wall, owing to the decubitus of the patient. Before, however, establishing an opening in the thoracic wall, I think the aspirator ought to be tried.

The Employment of Salicylic Acid in Pneumonia.

Dr. L. L. SILVERTHORN gives the following case in the Chicago *Medical Journal and Examiner*, February, 1878:—

I was called on the morning of August 24th, 1877, to see Mr. H., a vigorous young man, about 25 years of age. He stated that on the previous day he had taken a good deal of exercise on horseback, had been caught in a heavy rain in the evening, and that immediately after getting into bed he had been attacked with a very severe chill. He suffered all night with general aching and pains, more especially in his right chest. I found him in the following condition: Face very much flushed, skin hot and dry, pulse 120 beats per minute, tongue coated and dry, some pain in right chest and shoulder, cough very distressing, dyspnœa, scanty expectoration of bloody mucus, bowels constipated, urine scanty and high-colored, distaste for food, and thirst. Percussion elicited general dullness over the right chest; auscultation revealed general crepitation, and slight rasping over the inferior posterior region of the same side. There was also crepitation in the lower left lobe. As I had the misfortune to break my thermometer a short time before, the temperature was not taken, but was evidently much exaggerated. The diagnosis was an unusually severe case of pleuro-pneumonia, and the prognosis unfavorable. My first impulse was to perform venesection, but accidently putting my hand in my pocket I discovered there a bottle of salicylic acid, and the idea occurred to me to employ it. I had previously witnessed its effects in the febrile state, and in the inflammation of acute rheumatism. I therefore ordered 20 grains of the acid to be taken every two hours till I should see him again, the first dose to begin at 9 o'clock A.M. My plan of mixing and administering salicylic acid is as follows: It is placed in a tablespoon half full of water, and sweet spirits of nitre added, drop by drop, till the acid is moistened. The patient swallows a mouthful of sweet milk, then the acid, and finally some more milk. By this means very little complaint is made of a bad taste, or of irritation of the mouth and pharynx. At half-past 7 P.M., the cough, pain and dyspnœa were not much relieved, the bowels had not moved, and there had been no discharge of urine, but the tongue was moist, expectoration more free, sputa very bloody, free diaphoresis. He had taken five doses of the acid and no nourishment except the milk with the powders. The following powder was given at night: Calomel, grs. v; morphia sulphate, grs. ½; sodic bicarbonate, grs. x; the acid once in three hours.

August 25th, 8 A.M. Patient had perspired profusely all night and rested well after taking the powder; at 10 o'clock very little cough or expectoration, no blood, tongue moist and almost clean, lungs expanding properly, pulse natural in frequency

but very feeble; much prostration. The kidneys acted but little, and this I attributed to the excessive sweating, as the blanket over him, as well as the sheet beneath, were fully saturated. The bowels had not moved. But one dose of the acid taken since the last visit, and no nourishment. To have castor oil, ℥j, oil of turpentine, ʒss, at once; milk and beef tea *ad libitum;* and after an operation, gr. x. of the acid every four hours.

P.M., 7½ o'clock. Patient still sweating, but not so freely; has perspired continuously for over twenty-four hours. Bowels and kidneys have acted well, appetite improving, has taken two powders, and seems well, but weak. The powders are discontinued, and aromat. spts. of ammon., ʒss, given every hour or two when awake, with food.

August 26th, 8 A.M. It is now just forty-eight hours since the first visit, and about fifty-eight hours since the onset of the disease. The patient has taken in all one hundred and forty grains of salicylic acid, calomel, grs. v, morphia, gr. ¼, soda bicarbonate, grs. x. The patient is dressed, has taken later a good breakfast, and is quite comfortable. The ammonia was given simply as a gentle stimulant.

On the Treatment of Pleurisy and Empyema.

At a meeting of the London Medical Society, in April, after detailing several cases, Dr. D. M. WILLIAMS said he would not occupy time in recording the histories of cases of pleurisy with serous effusion, but only remarked that they usually took from six weeks to six months' time before the fluid was absorbed, if it had been thrown out in any considerable quantity; but, notwithstanding the longer time (three months), such cases have done well in his practice, the lung expanding once more. He felt, therefore, encouraged to treat these with diuretics, iodine, etc. Nevertheless, as an illness of two or three months was often a very serious matter to the patient, sometimes causing the loss of employment, or of business, he had asked himself if there was no way by which they could hinder the effusion of serum, or at least, its accumulating in any great quantity. When they remembered that the sharp stitch in the side in pleurisy, caused by the friction of the two surfaces, was intended to limit the movement of the lungs, we could not but feel that Nature had already given them the hint—stop respiratory movements and the mischief is prevented. They had already recognized that principle in peritonitis, synovitis, etc. Here, however, they had to do with an organ whose function could not be stopped with safety to the patient; but he thought they could sufficiently limit the movements of one lung so as to hinder the formation of, at any rate, a large quantity of fluid in the chest, and this he had attempted to do by strapping the inflamed side firmly with plaster, taking care to bring the ends of the plaster to the opposite side of the spine and sternum. The first result of such treatment was a great relief from pain; the next was a subsidence of fever, etc. To say that a few cases had been thus treated successfully was to prove nothing, as it might be reasonably urged that these were slight ones, or only dry pleurisy; a medical friend, however, had, at his request, already treated eight successive cases successfully. Having detailed one case treated successfully in that way, Dr. Williams said that since writing the description of that case he had heard that an American surgeon had claimed all thoracic diseases for the domain of surgery, and treated all such by pressure, but not exactly strapping, while Dr. Fred. Roberts had, he found, already advocated strapping. Again, with reference to empyema, he wished to dwell especially on the condition of the lung after recovery. It is pretty generally admitted that in children under twelve years

of age, such cases usually ended well, the lung expanding again, whatever may have been the amount of mischief; while in adults this was rarely the case, the lung being almost always so damaged as to be unable to support life alone. This is surely not a cure in which we can take much comfort, however brilliant the recovery might appear to the patient and his friends. On the contrary, they should not consider such cases cured unless the lung once more occupied its normal situation. He had asked himself the reason why the lung should expand so easily in children, and scarcely ever do so completely in adults; and he thought the condition of the ribs in children explained it. Thus, in children the ribs yielded rather readily to the atmospheric pressure without losing their spring; consequently, there was not left the same amount of empty space in the chest when the fluid was removed as in an adult, while, at the same time, there was a constant suction power from the tendency the ribs had to resume their natural curve. In the adult the ribs yielded much less readily, but eventually became bent in permanently. Now, it had occurred to him that if they could imitate this, and find some plan of keeping the pleural cavity more or less constantly in a state of vacuum before the ribs bent, without using injurious force, they would help the lung to expand; and for this purpose he had invented a cannula with a very delicate valve, which, by acting only one way, allows fluid or air to escape from the chest, but instantly hinders air entering it. Now admitting that a patient, with this tube in situ, coughs only twice each hour, the force of coughing easily expels fluid out through this tube, while the valve effectually hinders the entrance of air into the pleural cavity. Thus more or less of a vacuum is formed, and in proportion to the amount of vacuum was the aid given to the air rushing through the trachea to expand the lung. The cannula had been purposely made short, in order that it might be worn until the lung expands pretty freely. It is secured in its position by tapes passed through the slits on either side. Seeing, then, that pleurisy, if detected at the commencement, may be greatly relieved, and effusion to any great extent hindered, by firm strapping, it became exceedingly important to detect it early. There was, of course, no difficulty in doing this when effusion had already taken place, but previous to that he considered it no easy matter to do so, in children. The pain in the side and friction sound, upon which they depended so much in the adult, were of but little use in dealing with children, and he had adopted the following plan:—Suppose a child two years old; very cross and feverish, with a slight cough, and these symptoms not explained by any other disease. He wrapped the child loosely in a blanket, and having put it sitting on its mother's knee, waited a minute or two; presently it coughed, and immediately cried. Then he put it sitting upright, and watched carefully; next time it coughed they would notice that it shrank to one side. He placed a warm flannel on that side, and let the mother keep up firm pressure; the child coughed again, but the crying and shrinking were less; and if on very careful examination there was slight dullness, and respiration a little feeble, without crepitation, they might be sure that they had a case of pleurisy; and if that side be strapped the child would probably have a good night, and be much better next morning. Supposing effusion to have already taken place (and the patient be a child), the fluid should be removed at once if the constitutional disturbance is great, as in all probability it is purulent, serous effusions giving comparatively little indication of their presence unless the quantity of fluid is great; indeed, he had been often surprised at the small amount of constitutional disturbance where he had found a large quantity of fluid, in both children and adults. If a doubt existed, the needle of the hypodermic syringe might be used to

explore, as recommended by Dr. Barlow and Mr. Parker; but in an adult he would seek to be guided entirely by the constitutional disturbance, which, he thought, was much greater where the effusion was purulent. If, in a child, a fistulous communication with a bronchial tube had already occurred, and pus was being freely expectorated, he would first strap the side and wait a few days, as that seemed to be Nature's best and most successful mode of removing pus from the cavity of the pleura (while fistulæ through the thoracic parietes almost always ended badly. Should the relief be insufficient, or the strength giving way, he would then tap the side; but, in the case of an adult, he would tap at once, notwithstanding that a fistula had occurred, as he had not seen a single such case do well without tapping. The pleural cavity should be freely washed out with a weak solution of carbolic or sulphurous acid, or iodine, and if, after a week or two, the pus remained foul, the wound should be enlarged with a probe-pointed bistoury, in order to give exit to any pieces of false membrane or clots of blood which might be decomposing.

(*b*) DISEASES OF THE CIRCULATORY SYSTEM.

On the Treatment of Disease of the Heart

In a lecture on the relievable aspects of heart disease, by Dr. W. MOXON, of Guy's Hospital, in the *Lancet*, January 19th, 1878, he says:—

It is in dilatation incapable of systole that digitalis exerts its really invaluable efficacy. I venture to say that whenever the heart's cavities are thus dilated, digitalis is the remedy indicated; and this is true whichever may be the valve whose disease may have caused the dilatation. Some writers assume that in aortic disease digitalis is injurious; but, in fact, when dilatation that cannot be closed is reached, and produces its proper symptoms, in aortic disease, digitalis is the proper remedy there also. I have found that where digitalis has exerted its benefit to the full, and no more good can be got from it, while the heart is still giving way, a further check to the symptoms can be obtained by giving tincture of belladonna along with it, in the proportion of ten minims of tincture of belladonna to fifteen of tincture of digitalis. In cases of urgent danger from dilatation with mitral disease, I have given as much as one drachm of tincture of digitalis, in one dose, with marked relief; at other times half a drachm, repeated in two hours.

The direct cause of dilatation of the heart is, of course, necessarily the inward distending pressure of the blood; and where the valvular disease does not encourage this inward pressure, as in simply obstructive disease, then this terrible occurrence of dilatation may be late in arriving. Thus, for the sake of prognosis, it is very important to be able to measure the extent of regurgitation in valvular disease. The pulse does this best. For instance, a full splashing pulse in aortic disease, or a small weak one in mitral disease, is of bad omen, especially the former. But when, in aortic disease, the pulse is small or of moderate volume, the case may do well, in spite of to-and-fro murmurs. Thus, I saw an old gentleman three years ago, whom Dr. Golding Bird had, thirty years previously, warned against running, "because the valves of the great artery of the heart were diseased." He had loud to and-fro murmurs, but a small, quiet pulse, and he died, at last, of a carcinomatous disorder of the spine. Several such cases I could relate. One man came to me as a life-office case, having had a single attack of rheumatic fever fifteen years ago, and no rheumatism at all since that time; he had a loud to-and-fro murmur of aortic disease, but a small, steady pulse, and was in good health. Also in mitral regurgitation, as

Dr. Barlow used always to insist, the smallness of the pulse as a measure of the regurgitation is a far more important sign than any the stethoscope can give.

Another valuable prognostic sign in heart disease is the degree of wasting present, or rather the rate of wasting. While the patient's nourishment is efficient one may hope for him. The texture-life is very sensitive to variations of blood-pressure in some people, and these are they who go to the wall when the heart is in trouble.

One cannot watch a collection of heart cases without being impressed with the evident way in which it reveals the inherent differences of individuals. The imperfect circulation puts a general trial on all the textures, and then we see which bear it well and which ill, and thus come out to view the peculiar tendencies to easy partial decay, which all individuals have more or less—tendencies like the bias in the bowls which Scotchmen roll on grassy lawns, to see how near a peg they can go, which bias differs in different bowls, but curves more strongly the course of the bowl as it nears the end of its career. In the same way we find one heart case cyanotic, another jaundiced, another anæmic, another hysteric, according as lung, liver, blood, or nervous system be the weak parts; and, as the heart trouble presses more and more, these troubles become more severe. It is true that in the long run, as death by stasis of the blood is approached, the conditions become much alike in all. But in the prior stages, when minor degrees of dyshæmia are present, I think it is worthy of some remark how long a weaker organ or system in the patient's frame will suffer alone before other and stronger organs give way. A medical friend of mine had aortic disease, with dilatation. He was under my observation for seven years before his death, and during the whole of that time he never was without crepitation at the bases of both lungs, but he never, to the last, had any œdema, nor ever any jaundice. A man now in Guy's has aortic regurgitation of long standing; he has had œdema of the legs for four years, but the bases of the lungs are quite free from crepitation; he has no jaundice. A girl at the present time in Guy's has been eight times in the hospital during the last five years, and has, on each occasion, been strongly tinged with jaundice, and has suffered dreadfully with the turbulence and irregularity of an enormously dilated heart, by which, for long periods, she has been confined to her bed. But in all this time she has never had any crepitation in the lungs, nor ever had any œdema of the feet or legs.

Since being much impressed with these differences, I have endeavored to learn whether remedies which act in favor of the exceptionally weak and suffering organ have any special power of relieving in these cases; whether, for instance, bile purgatives relieve the jaundice, or pulmonary stimulants the crepitant lungs, or whether it is better to devote all atttention to favoring the circulation. And I have been led to the conclusion that much may be done, by special care of the weak system or organ, towards making proper use of the all-important time in heart disease before dyshæmia has reached the more severe degrees; but that the main objects to keep in view in all cases are these: to maintain the nutrition of the blood (perfectly good blood will almost go round of itself), taking care to keep the constituents of blood plentifully supplied in the diet; to avoid undue strain on the heart itself, inducing the patient to live on one floor if possible; and to keep the texture life as healthy as possible.

Digitalis and Morphia in Heart Affections.

In the *Journal de Thérapeutique* for January 10th, Professor GUBLER sums up as follows the conclusions of an elaborate paper on "The Comparative Indications of Morphia and Digitalis in the Course of Organic Affections of the Heart:"—

1. Digitalis, the moderator and regulator, *par excellence*, of the circulatory rhythm, increases the energy of each sytsole in proportion as it brings about a diminution in the number of the cardiac revolutions. This result may be expressed in an arithmetical formula, in these terms: The force dispensed by the heart in the unity of time being relatively constant, the absolute value of the fraction is so much greater as the denominator is less.

2. By means of this cohibition, with or without the aid of directly hypercinetic or even corroborant action, the probable existence of which has not been demonstrated, digitalis becomes a precious agent in special tonic medication in some subjects of nervous palpitation, and in most of those who have organic disease of the heart.

3. Its success is, so to say, assured as long as the asystolia depends upon disorder of the cardiac innervation, and on the ill-directed employment of the contractile force of the myocardium. Now, this cardiac ataxia is the normal condition of organic lesions of the heart, in the early periods of their development, and it persists not only in the more advanced anatomical stages, but often also amidst the general complications which aggravate the symptoms in the gravest cases.

4. Nevertheless, a time comes when the asystolia is no longer the mere effect of the too rapid succession of more or less abortive, and consequently inefficacious efforts. The debility becomes fundamental, and Bouillaud's *folie du cœur* gives place to powerlessness. Then the reign of digitalis is over, and that of direct or indirect tonics, of dynamophores, and of stimulants commences.

5. Among all these remedies, the first place, without contradiction, belongs to opium and some of its principles, morphia especially possessing remarkable efficacy against the accidents resulting from cardiac paresis, which I designate cardioplegia.

6. By arousing the vitality of the capillary network, stimulating hæmatosis and the act of nutrition, it favors the increase of force in general, and especially that of the excito-motory force of the spinal bulb, and of the conductibility of the nervous cords which issue from it. It contributes also to keep up the circulation and the other great functions in consequence, by the calm it imparts to the sensibility and the moderation it consecutively restores to the rhythm of the movements of the heart. Again, it acts in the same direction by its hypnotic power, as sleep suppresses much expenditure, and as the soporal congestion is an anatomical condition extremely favorable to the restoration and nutrition of the nervous centres—very poor in capillary vessels.

7. If we are well informed as to the different aptitudes of digitalis and morphia, and if careful clinical analysis enables us to seize the two principal pathological conditions to which these great medicaments correspond, still, in spite of this, science is far from being able to guide us surely in the choice of the appropriate remedy in each particular case. What are the signs by which the practitioner may recognize that he ought to have recourse to opium rather than to digitalis? or—which in our opinion comes to the same—what are the differential characteristics by which he can distinguish cardioplegia from cardiataxy?

8. Digitalis is evidently indicated in simple lesions of the orifices and the valves, even when these are advanced, provided these exist in young persons otherwise well, or in more aged subjects who are as yet exempt from the general changes in the economy embraced under the term cardiac cachexia. Doubt commences when the asystolia is accompanied by grave complications, as anasarca, dropsy, albuminuria, cyanosis, orthopnœa, etc. In such cases we must proceed only tentatively. The

same may be said of purely nervous palpitations, which, like the secondary circulatory disorders of organic lesions of the heart, may doubtless be divided into sthenic or irritative, and asthenic or paretic, between which their apparent characteristics do not allow of our distinguishing.

9. In doubtful cases it is digitalis which presents most chance of success, since it has been found to succeed when all hope seemed lost; but it must be given with caution and watching, so that it may be stopped in time if contraindications present themselves.

10. The following rules should be observed in its administration: Preference should be given to digitaline or to the tincture of the codex, as other preparations are less efficacious and less safe. Infusions, whether in cold or warm water, possess too great nauseating or even cathartic power to allow of their being used in heart affections. Digitaline, however, should not be given in the pill form, but in an alcoholic solution properly diluted—two milligrammes per gramme being a sufficiently concentrated alcoholic solution.

11. The mean dose of the tincture of the codex is represented by ten drops; that of amorphous digitaline is one milligramme, or fifteen drops of alcoholic solution; and of the crystallized digitaline one-quarter milligramme, or four drops of the solution. This may be repeated two or three times in the twenty-four hours—the daily dose attained of the tincture being twenty to thirty drops, of the amorphous digitaline forty-five drops, and of the crystallized twelve drops. These doses need hardly ever be exceeded.

12. The digitalis should be given at a distance from the meals; and if the stomach is intolerant of it, it should be combined with tincture of cardamoms, essence of mint, etc. If, in place of amending after the early doses, the anxiety increases, and the pulse becomes small and irregular, it should be suspended for two days, and then tried combined with opium and aromatics; abandoning it altogether if this association does not succeed. Although its beneficial effects are not observed until about the third day, yet the digitalis should not be prolonged beyond five or six consecutive days, for fear of toxical effects being produced by accumulation.

13. In organic disease of the heart, uncomplicated with grave lesion of the aortic bulb, and especially of the arch of the aorta, we may say that the later employment of opium coincides with the withdrawal of digitalis. Morphia may render assistance when the resistance of the economy becomes enfeebled. Its indication increases with the cachectic symptoms, and it becomes urgent and inevitable in the ultimate periods of the disease, when paralysis progressively invades the central apparatus of the circulation as the prelude of death. In cardiac affections morphia is the last safeguard of the patient and the *ultima ratio* of therapeutics.

14. But the indication of morphia is much more early in the course of aortic alterations, whether independent or complicated with lesions of the heart itself. It exists sometimes before the appearance of rational symptoms of the affection, often prior to any cachectic alteration, and almost always in the slightly advanced stages of the malady. In the first category it is required to assuage the acute pain of *angor pectoris;* in the second it serves to palliate the effects of the distention and wearing away of nervous branches by aneurismal dilatation of the aorta; and in the third it combats alike this paralysis from local cause and the paretic condition which results from the insufficient restoration of the centres of innervation, as well as the injury done to the sanguineous crasis and general nutrition.

15. Except the painful complication alluded to above, all the other conditions

call for exclusively the stimulant and indirectly corroborative action of opium, and opium exhibits this only on the condition of being administered in small and frequent doses. Moreover, in order not to increase the existing torpor of the digestive organs, it is also desirable to employ it hypodermically.

16. The dose of the chlorhydrate of morphia should, at its maximum, be only 0.01 centigramme to commence with, and it would be better even to employ only half this quantity. The injections may be repeated two or three times in the twenty-four hours, continuing them almost for an indefinite time if the circumstances are imperious.

17. But the early doses becoming insufficient, they have to be progressively increased, especially during attacks of asystolia, diminishing them again when the crisis has passed or become appeased. The daily mass of morphia may thus be raised, if necessary, to four, six, eight, or ten centigrammes, distributed over three or four injections, made at equal intervals in the twenty-four hours.

18. These large doses must be continued as long as they are required to keep up the functional dynamism and sustain the economy, or at all events prevent its giving way. The inconveniences of chronic morphinism cannot be placed in balance against the dangers which immediately menace the existence of the patient.

19. In spite of their aptitudes being so different and their indications in some measure contradictory, opium and digitalis are far from always excluding each other, but often in the transitory phases or complicated forms of diseases of the heart afford mutual aid—as, for example, when the element "pain" becomes added to the motor disturbances of the organ, or when asystolia expresses not only the precipitation and tumult or ataxia of the heart, but also a certain amount of paralysis or cardioplegia. By contributing to the maintenance of the strength, the morphia injections insure the regulating effects of the digitalis, and at the same time act as a counterpoise to the depressing influence which the latter does not fail to exert as soon as the dose given becomes exaggerated.

20. The simultaneous or successful administration of these two great remedies in nowise precludes our having recourse to the various other means of treatment derivable from hygiene or the materia medica.

A Typical Case of Aortic Regurgitation.

Dr. David Wooster, of San Francisco, reports the following case to the *Pacific Medical and Surgical Journal*, February, 1878:—

I was first consulted by the deceased about ten years ago, when he was at the age of forty-four, for "some trouble about his heart."

On examination, I found a murmur synchronous with the heart's systole, but was unable to decide whether the murmur was louder in the direction of the ascending aorta, or at the apex of the heart. The murmur, at that long period before death, was so boisterous that it could be heard everywhere along the diaphragm, on either side, in front or behind. I believed it then, and ever after, to be a compound murmur, resulting from incompetent mitral valves, constriction of aortic orifice, or obstruction from atheromatous, cartilaginous, or bony deposit, in the aortic walls near the heart, or on the aortic valves, or in both localities.

It will be understood by observing and intelligent readers, that a differential diagnosis as to whether a systolic aortic murmur proceeds from aortic constriction, or from deposits on the lining of the aortic orifice, or on its semilunar valves, with-

out any narrowing of the orifice at all, cannot be positively made out. Neither is it of the least practical importance that this distinction should be made, for if it was made, it would in no respect modify the treatment.

Aortic constriction from deposits narrowing its calibre will be followed by the same train of symptoms, and probably the same succession of pathological alterations, as if the deposits were attended with corresponding dilatation of the aortic orifice. But to my case:—

This man had manifest hypertrophy, the area of precordial dullness being enlarged, and the apex of the heart having already moved to the left, so as to be in a line below the left nipple, instead of between such a line and the border of the sternum.

Omitting details of interest, but not essential to the progress of the case, I hasten to the second decided symptom of advancing disease.

I find from my notes, that about five years ago I first observed a diastolic murmur, heard loudest down the sternum, from the upper margin of the third left-rib cartilage. This murmur was ever after persistent. There was no doubt of its origin from insufficiency of the aortic valves. Coincident with this observation was the other confirmatory sign—visible pulses of superficial vessels, on the temples and back of the hands. These visible and often moving (as if crawling) superficial pulses, are a sign of aortic incompetency, that will scarcely ever lead one astray.

The hypertrophy increased, and no attempt was made to limit it as to the ventricle which might be hypertrophied in excess; for this diagnosis, if differentiated ever so nicely, is not practical, either as to treatment or prognosis. But the absolute differentiation is, in the present state of our knowledge, impossible; that is, in a given case, we cannot say categorically that the hypertrophy is, or is not, limited to the left ventricle. We shall be able to say in the most absolute manner whether there is any hypertrophy of the left ventricle, but we cannot be so certain of the co-existence or absence of hypertrophy of the right ventricle.

If this proposition were doubted, this case would abundantly prove it; but it is presumed that it will not be disputed, even on theoretical grounds.

This subject used every intelligent precaution to guard against sudden or unreasonably early death, with two exceptions; one, he married three years before death; the other, he always ate too much relatively to the amount of exercise he was able to take. He well knew he felt better when he ate but little, but there was a constant struggle between appetite and reason; and, as in most cases, the animal triumphed generally.

He walked slowly, and rarely or never hurried. For the last five years he expected to drop down suddenly in the street or in his house, and hence he was always on guard against any sudden emotion or action, which he understood would be likely to precipitate the catastrophe. For the last three years he has had considerable cough and gradually increasing dyspnœa, but never any feeling of imminent syncope.

There has never been any œdema, albuminuria, rarely headache, rarely abdominal disturbance of any kind. No visceral tenderness on pressure or percussion anywhere; no icterus or maculæ; no special tendency to coldness of feet or hands; no impairment or perturbation of intellectual faculties or of the special senses. His look has generally been that of a tired and somewhat anxious man.

Some ten days before death he took to his room, and left it no more. For the first few days he sat up in an easy chair most of the time, but the lower extremities

especially, and the whole body, feeling weaker than usual, he took to his bed and never sat in a chair again. His most comfortable position was sitting up in bed, the trunk nearly perpendicular. Inclining backward, except at a trifling angle, increased his dyspnœa; leaning forward he could not tolerate. His pulse three days before death was full and bounding, eighty, gliding backward slightly at the latter part of each systole. The respiration was heaving, oppressive, and difficult; the look anxious and restless. The tint of the skin was pale purplish; the eyes looking slightly puffy, but the lids were not œdematous.

The carbonization of the blood gradually increased; intellection became slow and slightly wandering; he was afraid to talk, on account of its inducing cough and increasing dyspnœa. The first sound of the heart could no longer be heard, a day before death. Thrombi had evidently formed in the ventricles and auricles, and were increasing in size momentarily. This was evident from the absence of the mechanism of the first sound, and from the gradual diminution in force and volume of the pulse. Death came by simple cessation of respiration.

Autopsy twenty-four hours after death. Adipose three-fourths of an inch thick on the sternum. Thoracic cavity alone examined; lungs normal, except extensive stasis in the edges of all the lobes, extending into the lung an inch or more. No inflammatory traces, old or recent. The heart, removed and washed, and emptied of its pale clots (there were no recent clots), weighed twenty four ounces. This enormous hypertrophy was limited to the left ventricle, and was eccentric and attended with immense dilatation.

The condition of both auricles and of the right ventricle was normal as to bulk and thickness of walls. Both auricles contained ante-mortem clots, intimately and completely interwoven with the musculi pectinati of the arpendices, and dropping into the sinus, and extending thence, on the right side only, into the corresponding ventricle, and thence into the pulmonary artery for some distance. There was no clot between the segments of the mitral valve. The ante mortem clot or thrombus extended from the fleshy columns of the left ventricle, through the aortic orifice, barely stopping short at the aortic sinus. On the right side this pale clot extended some distance up the ascending cava, but not at all into the descending cava, nor into the pulmonary veins from the left auricle. The coagulum of the left ventricle was much smaller than that of the right.

The anterior segment of the mitral valve contained several nodosities, nearly osseous in feel, and the edges of both segments looked as if recently inflamed; but this valve was competent, as verified by pouring water in the ventricle. The orifice of the aorta had passed into atheromatous osseous degeneration, and was quite inelastic and much dilated. The aortic valves were altogether incompetent.

The free margins of the aortic valves had become cartilaginous and bony, and although not glued to the aortic wall, so great was the dilatation of the aorta itself, that the permanent aperture between the margins of the three valves was as large as the orifice of a normal aorta. From this pathological statement it will be seen that though the aortic valves did not shut during life, and in consequence of the rigidity of their cartilaginous margins were practically motionless, yet behind their hardened lunulæ the pouches and thin portion of the valves still offered some resistance to the diastolic current of blood.

Here it is beautifully shown how nature halts and intrenches herself at every step in the struggle with destiny, and succumbs only when every point of resistance is carried by the enemy. This man would, or at least might, have survived another

cade had not fatty infiltration finally been added to this immense hypertrophy. ıe apex of the left ventricle, nearly an inch in thickness, was so friable that it ıuld easily be rubbed up between the fingers, like fatty tissue. The whole left ıntricle, after having been exposed to the air some time, retained its fawn color. There was no dropsy of the pericardium, but on the anterior aspect of the left ıntricle was a broad whitish tache, two inches in diameter, not the ordinary whitish atch, the size of a thumb nail, so often found on the surface of the heart, and this, erhaps, was the result of very recent inflammatory action. The numerous slight nginas the patient experienced during life are explained by fatty heart and incom- etent aortic valves. The usual termination of life by syncope in the conditions nentioned, namely, incompetent aortic valves associated with hypertrophy and fatty ubstitution, was no doubt averted by the constant care the patient took of himself in regard to all sudden acts or motions, and all causes of fatigue.

The almost pulmonary apoplexy without recognizably incompetent mitral valve, is explainable by the state of constant repletion in which the left ventricle performed its function, thus ever presenting a plenum against the arterial current from the left auricle through the mitral, and hence the constant tendency to stasis or engorgement of the pulmonary veins.

Nor would this condition of the heart, namely, competent mitral valves and incompetent aortic, have the same tendency to produce hypertrophy and dilatation of the left auricle, and secondly of the right ventricle, that incompetency of the mitral valve would. In the former case nature would use sparing force in driving blood through a valve (the mitral), already acting as a barrier to the current refluent through the aortic orifice. Hence there would be perpetual partial inhibition of excessive muscular action behind the mitral valve, which would tend, to that extent, to maintain the physiological state of the left auricle and right ventricle and pulmonary artery; and this is another instance in which well considered theory and pathological states support each other.

Lastly, this case is another proof of the difficulty of making a positive diagnosis of mitral regurgitation, or its absence, when aortic constriction, or aortic valvular or mural roughness, causing loud systolic murmur, is also present. The best auscultator may be pardoned if he erroneously differentiate the two most frequent systolic murmurs, mistaking a mitral for an aortic systolic, and *vice versa*. Still this error will rarely be made, and when so made will hardly modify the treatment or prognosis.

(*c*) DISEASES OF THE ORGANS OF DEGLUTITION AND DIGESTION.

Dyspepsia from Gastric Catarrh and Gastric Atony.

Dr. T. LAUDER BRUNTON writes, in the *Practitioner*, December, 1877, in the course of an article on dyspepsia—

If any one is obliged to inhale fine, irritating dust for some time, the mucous membrane of the bronchial tubes becomes inflamed, secretes a quantity of mucus or muco-purulent matter, and the inflammation is accompanied by more or less pain and rawness in the chest and attempts to expel the mucus by coughing. Not unfrequently the same condition comes on after exposure to a draft, although no irritating substance has been inhaled. The mucous membrane of the stomach and that of the lungs are not unlike in their reaction to irritation or cold. I have

already mentioned that after St. Martin had been freely partaking of spirits for some days, Dr. Beaumont found his stomach inflamed, bleeding, and partly filled with ropy mucus and muco-purulent material. From the ample experience which one gets at this hospital, I think we may safely say that had St. Martin gone on drinking for some days more, he would probably have got his stomach into such an irritable condition that he would have felt considerable pain and tenderness to pressure in the epigastrium; every morning when he rose he would have vomited some of the mucus which it had secreted over night, and he would have vomited the greater part of each meal shortly after he had taken it. The appearances presented in such a condition would probably have been the same as those actually observed by Dr. Beaumont, but somewhat intensified.

But a similar condition may occur in the stomach from exposure to cold or to a draft, just as in the case of the lungs, although no irritating substance has been swallowed.

How drafts act in producing this condition is a subject not unworthy of the Society's attention, but time would fail me were I to attempt to develop a theory of catching cold, either in the stomach or lungs, in this paper.

Treatment.—The treatment, which is very successful, is to give about ten grains of bismuth with ten of magnesia, in a little mucilage, three or four times a day, before meals. If the vomiting is excessive, it is well to combine a few drops of hydrocyanic acid and some bromide of potassium, and if the pain at the epigastrium be great, a warm poultice, or even a mustard plaster, should be applied.

We must now pass on to the chronic forms of indigestion, and shall first take that of chronic gastric catarrh. The condition of the stomach here is just that presented by St. Martin after his alcoholic indulgence, but when it has continued long the structure of the stomach becomes more or less altered, the gastric glands undergoing fatty degeneration, and the connective tissue becoming increased and the mucous membrane firmer.

The symptoms are such as we should expect. There is either little appetite or a craving appetite, easily satisfied; sometimes, instead, there is a feeling of emptiness in the epigastrium, or nausea, although there is little vomiting. From the irritable condition of the stomach there is often pain coming on shortly after food, or more or less constant, but increased by food. The secretion of gastric juice being imperfect, the food is slowly digested and undergoes decomposition, forming gases and acids, and thus giving rise to flatulence and heartburn. The constant discomfort and pain makes the patient irritable, and the imperfect digestion of the food, as well as the diminished quantity taken on account of the pain caused by it, lead to muscular weakness, and mental languor and depression.

The bowels are frequently constipated, or may be subject to alternate fits of constipation and diarrhœa. The pain complained of is partly due to the tender condition of the stomach, but it is also caused, to a great extent, by distention of the stomach with flatus.

This condition is very frequently seen in middle-aged or elderly women, who come to the hospital complaining of "windy spasms." On inquiring more closely into their symptoms, they tell you that they have "pain in the pit of the stomach, striking through between their blade-bones," and further questions will elicit most of the other symptoms already described. There are other remedies in the Hospital Pharmacopœia which work wonders in such cases: the Haustus Gentianæ C. Rheo., and the Haustus Calumbæ Alkalinus. The formula for these are:—

HAUSTUS GENTIANÆ CUM RHEO.

℞. Infusion of rhubarb, fl.℥ss.
Tincture of gentian, ♏.xxx.
Bicarbonate of soda, gr.x.
Spirit of chloroform, ♏.x.
Peppermint water, ad. fl.℥j.
Dissolve and mix.

HAUSTUS CALUMBÆ ALKALINUS.

℞. Bicarbonate of soda, gr.x.
Tincture of orange peel, ♏ xxx.
Infusion of calumba, ad. fl ℥j.
Dissolve and mix.

Both of these draughts contain bicarbonate of soda and a vegetable bitter. When given before meals the alkali stimulates the secretion of gastric juice, while the bitter is supposed to lessen the secretion of mucus. The food thus becomes more rapidly digested, less acid and less gas are formed, and the spirit of chloroform, by acting as a carminative, enables such gas as is formed to be more readily expelled. When taken after meals, this beneficial action of the alkali is lost, and it becomes injurious rather than beneficial, except in cases where excessive acidity is developed during digestion.

In regard to the pathology of acute attacks of indigestion, I mentioned that the livid spots observed by Dr. Beaumont might possibly be connected with obstruction through the liver. An additional argument in favor of this view is afforded by the fact that chronic catarrh, such as I have just described, may not only result from repeated or constant irritation of the stomach by alcohol, tea, spiced and indigestible foods, etc., or from cancer or ulceration of a part of the stomach, but also from interference with the portal circulation, as in disease of the liver.

Lastly, we will shortly consider atonic dyspepsia. This condition probably corresponds to that temporarily observed by Beaumont, where the mucous membrane was pale and flabby. The symptoms are here also such as we should expect, the appetite being almost absent, yet the patient is often able to eat a fair meal. The stimulus of the food, however, in a stomach below par does not cause a sufficient secretion of gastric juice, and possibly also the composition of the juice is not all it might be; the digestion consequently goes on slowly, there is heaviness and weight at the epigastrium after meals, and the belly becomes humid, from the generation of gas. Eructation gives relief, but not unfrequently is accompanied by heartburn, acids being formed as well as gas, and coming up together.

The symptoms, in fact, are those of imperfect digestion, already described under chronic gastric catarrh, with this difference, that there is no marked pain and tenderness at the epigastrium, and the tongue, instead of being red or covered with fur, through which enlarged papillæ project, is rather pale, flabby, moist, and marked with the teeth at the edges.

This condition depends on weakness of the circulatory and nervous systems. For the secretion of gastric juice not only demands an action of secreting cells, but also a full supply of rich blood to supply the materials needed. Both the cells and the blood vessels are under the direction of the nervous system, and unless it responds to the stimulus of food, the cells do not secrete, the blood vessels do not dilate, the juice is not poured out, and digestion does not take place.

The treatment in such a condition is somewhat the same as in chronic catarrh, viz., alkalies and bitters; but in addition we must attend to the general condition

of the patient, and give iron, to improve the condition of the blood and the nutrition of both cells and nerves. Strychnia or nux vomica also is a most useful adjunct, as it increases the excitability of reflex centres, including those which preside over the vascularity of the stomach and the secretion of its cells, and thus renders them more ready to respond when the stimulus of food is applied to them. At least this is the theory I have formed to explain the undoubted advantage which we derive from its use in such cases.

A Case of Invagination of the Large Bowel. Death in One Hundred Days.

Dr. J. W. RUTLEDGE, of Cambridge City, Ind., reported to the Union District Medical Society an interesting case of this character, published in the Cincinnati *Lancet and Observer*, February, 1878:—

Alice J., age 21 months, a well developed, well nourished, and intelligent child; always healthy until the evening of April 26th, 1877. She was attacked with what her parents supposed to be a severe spell of colic, lasting most of the night. Small doses of calomel and rhubarb were prescribed the next day, as there was slight costiveness, and the child was not entirely free from pain.

I was called May 3d, seven days after the commencement of the attack. The patient was easy when in the horizontal position, but would put her hands on her abdomen and cry out when walking about the floor; bowels regular; appetite poor, except when she nursed from her mother, and no fever.

I was called again May 10th. The patient had had another attack the previous evening, lasting nearly all night, despite the free administration of opiates; was rather drowsy in the morning, but free from pain. At this time a sausage-shaped tumor could be felt extending from the left hypochondriac region of the abdomen. It was freely movable in all directions, but not at all tender when freely manipulated. A lumbricoid was passed about this time, after the administration of some santonine. The stools were in a solid form, and some corn passed whole, which had been eaten a few hours previously. A day or two afterward one or two bloody stools were passed, otherwise was feeling tolerably well.

The patient was tolerably well from this to July 31st, except on the Monday evening of every second week she would have an attack of intense pain, which would last most of the night, and would only be quieted after the administration of five or six ten-drop doses of the solution of bimeconate of morphia. She would be quite drowsy for a day or two, and then would be comparatively well, playing on the floor with the other children until the end of the second week. Quinine administered before the attack had no effect on the pain.

The patient was taken at this latter date with severe vomiting and diarrhœa; an occasional bloody stool was passed, mixed with mucus. The vomiting soon ceased, but the diarrhœa continued until death. The tumor now felt low down in the left iliac region, extending in a crescent shape toward the umbilicus, and ended just above it. The suffering was intense, and only quieted by ½-grain doses of morphia, given every three or four hours. Death took place from exhaustion, August 4th, one hundred days from the commencement of the attack.

Autopsy sixteen hours after death. The large intestine formed a convoluted tumor, extending from the rectum, arching upward, and ending just above the umbilicus. The small intestines were quite empty and somewhat congested. Nine inches of the ileum, the caput coli and the ascending colon, had passed into the transverse and

descending colon, the head of the colon being within two inches of the anus. The transverse colon had passed over the descending colon, forming an arch-shaped tumor six inches in its shortest diameter, nine and one-half inches in its shortest curve, and ten inches in its longest. The mass, when stretched out, was forty-seven inches in length. The whole of the ascending colon was very much thickened, the walls of the cæcum being fully three-fourths of an inch. The ileum lay alongside of the ascending colon, firmly glued fast to it.

This was, undoubtedly, a case of double invagination, beginning at the caput coli. Smith, in his "Diseases of Children," 2d edition, gives an account of six cases of this variety. Two died on the third day, one on the seventh, and of three the time is not stated. He also states that double invagination is very rare. The first invagination becomes arrested, forming a mass of very great thickness, and is necessarily fatal. He gives as causes, previous ill health, lumbricoids and rough handling. The parents stated that the father was in the habit of pitching the child up and catching it in his hands.

The symptoms present in such cases as detailed by Smith were entirely wanting, such as obstinate constipation, tenderness over the bowels at any time, bloody stools, great tenesmus, obstinate vomiting, etc., until the last two or three days before death. The most positive sign was the sausage-shaped tumor felt in the left hypochondrium, as spoken of by Leichstern in vol. 7 of "Ziemssen's Cyclopædia." No attempt at reduction was made, as a positive diagnosis was not made out during life, the autopsy making all clear.

The case is unparalleled in symptoms, as far as I can find any account in medical literature, although some cases are reported as living longer. All gave more positive signs of the disease.

The Use of Iron in Intestinal Hemorrhage.

In the Atlanta *Medical and Surgical Journal*, January, 1878, Dr. E. F. STARR speaks highly of the use of iron in hemorrhage of the bowels, and gives an example. The case was that of a man, twenty-eight or thirty years of age. He was in a relapsed condition—had been able to be up and out, but exposed himself too soon. His loss of blood commenced in the early part of the night, and continued into the forenoon of next day. I was absent from home, and did not see him until ten o'clock in the forenoon. He had recently had, as I was informed, the fifteenth discharge when I arrived. It was small, compared with others he had had. It was still in the vessel, and I saw it. It consisted of what appeared to be about a gill of blood, partly clotted. His wife, and a neighbor present, assured me that he had passed in the fifteen discharges, as they believed, at least a gallon of blood. But blood makes a great show, and they may have over-estimated. Before my arrival he had had one dose of precipitate of iron, which I had sent by the messenger, with instructions to give a teaspoonful with a little water every hour, and this fifteenth discharge was the last that occurred at this time, after taking the medicine. I repeated it two or three times afterward, and he complained of uneasiness through the bowels and hips. I gave him a fourth of a grain of morphine, to relieve his malaise, quiet his agitation, and procure him sleep. It had the desired effect.

I left him aromatic sulphuric acid, to take in case the hemorrhage should return. Things went on well until late in the ensuing night, when his bowels became uneasy and the discharges commenced again. He took the acid drops, but thought they did not produce so good an effect as the "red powders." So the iron dust was taken

freely, and the discharges soon ceased. When I saw him afterward, I gave him more morphine, and left him some to take in addition to the iron, if needed. There was no further trouble of this kind, and the patient did well.

It may be seen that the iron and morphine were mainly relied on in this case, and that quinine was withheld, that the test of the iron might be more satisfactorily made. I have often used this article for other hemorrhages, and with almost magical effect, but never before for this condition of the bowels. I have great confidence in its usefulness.

The Diagnosis and Treatment of Stricture of the Large Intestine.

In an article on this subject in the *British Medical Journal*, January 26th, 1878, by Dr. SIDNEY COUPLAND, and Mr. HENRY MORRIS, they say as follows:—

What we have to say upon the subject of diagnosis may be summed up in a very few words. We must confess, with Dr. Fagge, that so far as regards the method employed for the accurate diagnosis of the seat of a stricture of the intestine, it is often impossible to be sure whether the disease is situated in the small or large bowel; and if it be in the large intestine, its precise situation there is extremely difficult to determine. All the rules based upon the symptoms of the disease have been at different times found wanting; and much the same statement may be made in truth with regard to such aids to diagnosis as are afforded by the amount of fluid that may be injected into the canal, by auscultation over various parts of its course during the injection, and even by the passage of the long tube. In every case where digital examination has proved negative, it might be worth while to adopt the method first practiced in this country by Mr. Maunder, largely employed by Professor Simon, of Heidelberg, and advocated by Mr. Walsham, of St. Bartholomew's Hospital; that, namely, of the introduction of the whole hand into the rectum. This method was employed in our case (above referred to) of stricture of the sigmoid, but, owing to the folds of the canal, the stricture was not reached; and it was well that it was not, for at the necropsy subsequently, the bowel at the seat of stricture gave way on the slightest traction. Mr. Walsham also had failed in detecting a stricture of the sigmoid flexure by this means; so that, valuable as the method may be, it cannot be fully relied on, and, moreover, it should be practiced with the greatest caution.

But, after all, from what has gone before it will be seen that, in our opinion, the precise determination of the seat of stricture is not of primary importance. In determining this seat, we are thrown back upon statistics; a knowledge of these will be a valuable guide, and they should be taken into prominent account when forming a diagnosis. We know that three-fourths of the cases of stricture involve the rectum and the sigmoid flexure; and we know that of the remaining one-fourth a very small proportion are seated above the ileo-cæcal valve. Nor, if we have arrived only at so imperfect a diagnosis as one based upon mere numerical averages, is our line of treatment at all the less secure. For we know, also, that the chief part of the passage to suffer from the effects of stricture of the large bowel is the cæcum; and we know that, if the ascending colon be opened, in 90 per cent. of these cases the opening will be above the seat of stricture, and will also give relief to the over-distended cæcum; while, as for the remainder—that is, those cases in which colotomy fails in its object—enterotomy should be performed, and relief thus afforded, although it may be with but a very imperfect conception as to the exact locality of the source of obstruction.

In regard to treatment, obviously, those cases of rectal cancer must be set aside in which the diagnosis by means of physical examination is easy, or in which the nature of the case has been made out long prior to the supervention of total obstruction. Of course, in such cases, the only rational procedure is that universally pursued by surgeons, viz., left colotomy; and all, in such cases, recognize the futility of delay and the long-lasting relief, for months or even for years, frequently obtained by that operation. But in all other cases, where the history is one of chronic obstruction, where the age of the patient favors the view of cancer, where, in fine, it is probable that a stricture of the bowel exists, then, without wasting time over repeated injections, administering powerful and harmful purgatives, we think that recourse should speedily be had to colotomy in the right loin. We advise this operation, because in a certain proportion of cases (about one-fourth) the stricture is higher than the sigmoid flexure; because in all these cases, whether the obstructing cause be far from or near to the cæcum, there is undue strain thrown upon that portion of the canal; and because the only chance of a favorable issue (in so far as an operation for relief of symptoms can be said to have a favorable result) obviously lies in giving prompt and early relief to the cæcum thus overstrained. It must be borne in mind that cases have occurred in which, the symptoms pointing to the disease in the sigmoid flexure, the descending colon has been opened and found to be empty, owing to the obstruction being situated in the course of the transverse colon or in one of its flexures. Had the operation of right colotomy been performed, not only would it have been above the seat of stricture, but it would also have at once unloaded the distended cæcum. The danger of delaying this operation cannot be too strictly insisted upon. Unfortunately, in the majority of cases, the surgeon is not called until the obstruction has been already complete for some time, and the cæcum has suffered in proportion. A case of stricture under our care last year affords an illustration of this. The patient, a woman, fifty years of age, was admitted into the Hospital on October 10th, 1876, with a history of complete constipation of twelve days' standing, unrelieved by purgative medicines. There was great distention of the abdomen, to about an equal extent on both sides, perhaps some slight fullness in the right iliac region. There was no vomiting. A long tube was passed *per anum*, to the extent of twelve inches; warm water injected into it could not be heard, on auscultation, to find its way into the cæcum, and was speedily returned, without the passage of either fæces or flatus. When the patient was under the influence of chloroform, the hand was introduced into the lower bowel, without meeting with any obstruction except that which appeared to be a fold of mucous membrane. Right colotomy was performed about six hours after admission, and was followed by marked relief to the distressing symptoms of distention, etc., but the patient sank from peritonitis, dying thirty-six hours after the operation. The peritonitis—which must have been present on admission—was due to ulceration of the coats of the cæcum, leading to extravasation of its contents into the peritoneal cavity.

But we would go further than this. The operation of right colotomy may have failed in its main object, owing to the disease being situated in the cæcum or small intestine, for so difficult is the diagnosis in cases where the abdomen is uniformly distended, that to ascertain the precise seat of a stricture is well-nigh impossible. The ascending colon may then be found collapsed and empty. In such a case, the wound in the loin should be stitched up, and relief afforded to the distended bowels by the operation of enterotomy, or the small bowel may be opened at the loin, if

thought desirable. The intolerable distress from fecal and gaseous accumulation endured by the patient is too great to be let pass without an effort on the part of the surgeon to remove its cause. Possibly he cannot hope to do much more than ease the path to death; but surely that is some gain. The desirability of performing this operation to give relief to over-distended intestines was insisted on by Trousseau (Lectures on Clinical Medicine, New Syd. Soc. Ed., vol. iv, p. 205), who, in his lecture on intestinal obstruction, gives directions as to the performance of enterotomy.

For ourselves, we may say that to us it seems that in all such cases, where the distention of the intestines is a source of suffering, as well as of danger, the operation of enterotomy is as imperatively called for as is that of puncture of the bladder in cases of over-distention of that viscus from impermeable stricture, and notwithstanding that fatal disease of the kidney may be already established. We hold that a free opening into the bowel is at once more effectual and safer than the method of acupuncture, which has been frequently adopted of late years. It is true that many may hold, with Trousseau, that puncture is not dangerous; but in a recent discussion at the Clinical Society of London, there appeared to be a pretty general consensus of opinion that acupuncture of the bowels was in many cases attended with considerable risk. Mr. Bryant said that in two cases in which he had practiced it, fecal extravasation resulted; and Dr. Silver, although urging the necessity of the procedure for the relief of over-distention, admitted that in one case fecal extravasation had occurred.

(*d*) DISEASES OF THE URINARY ORGANS.

Diabetes Cured by Skim-Milk.

Dr. H. W. JONES, of Chicago, gives the following instructive case, in the Chicago *Medical and Surgical Examiner*, February, 1878:—

On the 24th of May last a gentleman consulted me, whose case presented the following aspects:—

He was forty-two years of age, of a bilio-nervous temperament, of temperate habits, though using tobacco freely, and with a history of remarkable health, excepting an occasional sick-headache, and a rare colic, from indigestion.

During the previous autumn and winter he had been subjected to severe mental strain, and was often engaged at his desk ten or twelve hours a day, under the pressure of anxious responsibilites. For the preceding ten days, or more, he had noticed a decided increase in the quantity of urine passed, believing it to amount to eight or ten pints daily, while the frequency of micturition was a source of annoyance by day and night.

He was also unusually thirsty, experienced decided lassitude, and though with fair appetite, had difficult digestion, and was losing weight. His mouth was aphthous, and he had balanitis for the first time in his life. A specimen of urine, presented the next day, was of a bright amber color, fruity odor, acid reaction, without deposit, specific gravity 1.047, and with Fehling's test precipitated abundant sugar.

The recent knowledge of Dr. Arthur Scott Donkin's plan of treating diabetes by a strict confinement of the patient to the use of skim-milk, led me to propose this regimen as the most promising known, and Mr. D. entered at once upon it with an intelligent appreciation of the gravity of his disease, and of the rules laid down for

his guidance. These were briefly as follows: He was (1) to take *no other food* than skim-milk; for the first day or two (2) he was to drink but *four or five pints* in all, distributing the amount at intervals of two hours; after the third day (3) he might add a pint or two of the same preparation *curded with rennet*, but he was not to exceed seven pints, including curd.

The milk was obtained through special sources, and was kept till all cream had arisen, when every particle of the latter was carefully removed.

The record here given Mr. D. kept personally, and it is replete with interest.

DATE.	SP. GR.	SUGAR.	NO. OF PINTS OF MILK IN 24 HOURS.	NO. OF PINTS OF URINE IN 24 HOURS.	WEIGHT.	REMARKS.
May 24	1.047	heavy		8 to 10		Disease discovered.
May 25					154	Usual weight about 165 pounds.
May 26	1.047	heavy	3			Began skim-milk; other food and drinks gi en up.
May 27			6	6		
May 28			7	5	147	Weak and indisposed to exertion.
May 29				4	150	
May 30			8	4	152	Two pints made into curd.
May 31	1.038	less	8		153	
June 1			8		154	Constipated.
June 2			8	3½	154	
June 7	1.030	less	10			Four pints made into curd.
June 10				4		
June 14	1 023	little			152½	Water enemas relieve constipation.
June 21	1.022	little	10		152	
June 28	1.018	none				
July 1				2		
July 5	1.032	sugar	10			Milk had not stood long enough to separate cream.
July 7	1.028	less	10			
July 8			8	3		
July 10	1 022	none	8	2½		
July 12	1.020	none	10			From this date no sugar appeared; the same food being continued.
Aug. 7	1.018	none				Began eating mutt n-chops and beef; no starchy foods. It is four weeks since sugar disappeared, and seventy-three days since treatment began. Averaged 1 020 to 19th.
Aug. 19	1 022	none				Eats now lamb, mutton, beef, fish, cabbage, onions, squash, oysters, eggs, chicken, and drinking tea and coffee.
Aug 30	1.020	none	3	normal	145	
Sept. 10	1.020	none	3	normal		Commenced eating bread.
Sept. 20		slight				A sleepless night and much anxiety.
Sept. 21		none				

It will be observed that in five days the specific gravity of the urine diminished from 1.047 to 1.038, and its quantity, from eight pints or more, to four pints daily. Meantime, the weight of the patient suffered little diminution.

In less than thirty days the specific gravity reached 1.018, and sugar wholly disappeared; but July 3d, when the atmosphere was unfavorable to the preservation of milk, and to the total removal of cream, sugar reappeared, but in very slight amount, the density, meanwhile, reaching 1.032. By the 10th, however, this fell again to 1.022, and the quantity of urine passed, to two and a half pints.

Four weeks from this time he began to eat mutton and beef, but touched no amylaceous food.

One month later he was permitted bread, and found no sugar during about a

week, but then, after a sleepless night, and much anxiety, he reported "a trace," which disappeared in less than a day, and has never since recurred.

At present the patient seems in perfect health, though he has been actively engaged at his usual avocation during the entire treatment. His stomach was never more dutiful, and he has had neither sick-headache nor colic since May last.

On Enuresis Nocturna.

Several obstinate cases of this, successfully treated by electricity, are given by Dr. JOHN BRYSON, in the St. Louis *Medical and Surgical Journal*, January, 1878. He concludes with the following remarks:—

Any theory that would attempt to account for this condition that did not take into account the part played by the nervous system in the act of micturition, would be very imperfect, and the introduction of this nervous element greatly complicates the clinical study of the disease. I believe that we will simplify our study of this condition by attempting to throw light on the physiological by a study of the pathological condition, instead of proceeding in the opposite direction.

1. We know, then, that *enuresis nocturna* is the prolongation into later life of a condition (*enuresis continua*) that exists physiologically in the child.

2. We observe, clinically, that the *enuresis continua* of later life disappears very much after the fashion of the physiological condition in the child, viz., by first becoming *enuresis nocturna*, and afterward ceasing to be an involuntary and unconscious act.

3. We know that in infancy and childhood peristaltic movement is very active, and micturition is a somewhat modified peristalsis. This activity is doubtless due, to some extent, to the well-known activity of the reflex mechanism in childhood; but I think that it may be due almost entirely to the preponderance, anatomically, of the detrusor over the sphincter muscular fibres.

4. We know that during the waking, conscious state, when the body is maintained in an erect position, the sphincters are tonically active, so that it is with great difficulty that the detrusors overcome them in certain cases, as for instance, the well-known inability of the novice to pass the urine while riding in a wagon or on horseback. During the unconscious state of sleep, this activity of the sphincters is absent, to a great extent, at least, and in the case of an organically weak sphincter vesicæ, it appears that the act of micturition would be more easily excited by its natural stimulant (the fullness of the bladder), and would be more easily performed.

5. But the tonicity of the sphincters can, by habit, be overcome—the novice can learn to pass his urine while riding in a wagon or on horseback; and, in exact parallelism with this, we find that the nocturnal enuresis of some children is simply a slovenly habit.

6. In cases of retention of urine from obstruction, urethral spasms, etc., where relief comes without instrumentation, it usually comes during the unconscious state of sleep, the patient waking to find the bed deluged with urine.

7. We know that the bladder neck, while governed by an intact spinal cord, will stand a pressure of twenty inches of water; but a pressure of six inches only when the lumbar spinal cord is destroyed, or the vesical nerves are severed. This being the case, it appears we are entitled to believe that the restraining influence of the tonic contraction of the sphincter is not brought into play until the pressure of the accumulated urine exceeds a pressure of six inches of water; and that the reflex and voluntary nervous influences remaining the same, all above this that the bladder

would be able to retain would depend on the relative strength and activity of the detrusors and sphincter.

8. That micturition may be a purely reflex act, is shown both by the experiment of Goltz and clinical observation of certain cases of disease of the cord where softening takes place above the lumbar region. But such reflex act does not appear to occur except in connection with a full bladder. Clinically, inflammation with hyperæsthesia of the bladder does not appear to influence this involuntary reflex act.

9. It appearing from the above that the proper stimulus to the act of micturition is a full bladder, *ed ist*, pressure from within on the neck, it seems that we are entitled to believe that the quantity of the urine secreted would have some material influence on the nocturnal incontinence. Such, indeed, appears to be the case. Belladonna, since the time of Trousseaux, has enjoyed high repute as a remedy in this disease; and later, opium, hyoscyamus and chloral have been used, with reputed success.

10. Nocturnal incontinence of urine does not constitute a feature in those diseases of the spinal cord where reflex irritability is supposed to be heightened, either in the adult or the child.

11. It appears that a very strong contraction of the detrusors is necessary to overcome a comparatively slight obstruction offered at the neck by the sphincter, or by pathological condition. We observe cases where quite slight obstructions are overcome with great difficulty by an hypertrophoid detrusor, aided by a fixed diaphragm and contracted abdominal muscles. To overcome this difficulty, we see the patients resorting to all sorts of grotesque positions and to a great variety of methods to bring about the necessary relaxation of the sphincter.

12. Of the purely nervous disorders of the bladder, chorea vesica is, perhaps, the best example; and this offers marked features to distinguish it from enuresis; in fact, it is not necessarily accompanied by the latter at all.

13. As a condition nearly the opposite of enuresis nocturna, may be mentioned cases of stammering bladder, well observed instances of which are on record by Sir James Paget. In these cases the activity of the sphincter appears to be developed in excess of that of the detrusors.

What, then, are we entitled to believe to be the essential pathological conditions in enuresis nocturna? I believe, broadly stated, it may be said to consist of an absence of the proper relation of the sphincter and detrusor muscles. To my mind, the evidence seems to point to the sphincter as being most at fault, and, further, to warrant the belief that the part played in this disease by the nervous system is a very insignificant one, if, indeed, it can be said to be concerned at all in a pathological sense.

On Reflex, Eccentric, or Irritative Albuminuria.

Dr. G. De Gorrequer Griffith, Senior Physician to the Hospital for Women and Children, London, says, in an article in the *Practitioner*, January, 1878—

Many instances which I would catalogue under this form of albuminuria have passed before me; but I shall, at this time, be content to relate only one case, that of Miss M., since it is a most distinctly typical case admirably illustrative of my meaning.

She had applied to me a few years previously, complaining of her general health being bad.

Finding tubercular symptoms in the lungs, I had sent her to Egypt to winter, with the best results to her condition. On her return she complained of being teased

with a discharge from the anus. Examination revealed a fistula, on which I operated July 10th, 1871. This was dressed in the usual way; in a few days she showed signs of uræmic poisoning, which made me discontinue the dressing, reasoning with myself that it was the occasion of the grave conditions present. I examined the water which the nurse gave me, and found it loaded with albumen; not satisfied, however, with this, thinking that some purulent discharge might have got commingled, I drew off the water with the male catheter, and then subjected it to examination. It was as loaded as before; very little found its way at all into the bladder—the kidneys seeming to have their functions almost quite arrested.

As, owing to the sympathetic irritable condition of the urethra, which had come on in the course of the daily dressing of the wound, no urine could be voided voluntarily, I discontinued the dressing at once; swept out the bowels by means of compound powder of jalap, and the kidneys by diuretics; after a few days the albumen and the attendant symptoms all disappeared, and my patient was herself again.

I resumed the dressing of the wound, and the symptoms all returned, compelling me again to desist. Cautiously I commenced the dressing a third time, using as little as was consistent with utility, so as to induce the least possible irritation and disturbance, all the time carefully examining the water to detect the very first trace of albumen. The dressing was well borne, the system seemingly quite tolerant of it: no albuminuria obtained; no bad symptoms arose, the wound healed, the patient recovered, and is at this date alive, and in better health than she has been for a very long time.

I think there is little doubt but that the dressing was the immediate cause of the albuminuria, and all the grave symptoms; the irritation occasioned by its insertion into the wound producing a stasis of the blood in the kidneys, congestion of the renal circulation, arrest of the urinary secretion, and transudation or exudation of the albuminoid elements of the blood; the uræmic or albuminurial symptoms supervening at the last. I do not think it likely that the appearance of the albumen was owing to the admixture of any discharge from the wound, since I guarded against the possibility of this by carefully drawing off the water with the catheter, and taking every precaution against such an accident. Nor do I consider the presence of the albumen due to any endosmosis, that is, passing of the albuminoid of the discharge from the surfaces of the wounds into the renal veins, and thence its exodus and transmission along with the urine; nor can I fall in with the view that by any process of absorption it passed into those vessels, or even more directly into the contiguous bladder, whence it was ready for withdrawal.

I must add that at the time of my attendance upon this lady I had my mind greatly exercised upon a somewhat identical case, which had terminated fatally, and reasoning on both of them, I feared the death of my patient from albuminurial or uræmic poisoning, were I to persist with the dressing. I feel convinced that had I not recognized the condition, and the cause of it, a fatal result must have ensued. I can understand how the temporary symptoms, if I may use the expression, would have passed into the permanent, showing that remedial derangement had proceeded to irremediable organic disorganization, the end of which could alone be death: how the first symptoms—irritation from dressings, stasis of blood in the renal veins, congestion of the entire renal circulatory system—veins and arteries—arrest of urinary secretion—would result in such structural, organic changes in the kidneys themselves, as would be manifestly evident in them at post-mortem examination:

structural changes incompatible with life; how, in fact, what was at first mere functional derangement would, if the irritation were persisted in, become developed into organic disorganization, inducing in its turn destructive uræmia, or albuminuria, and that in this way irritative albuminuria, an ailment merely temporary, because perfectly remediable, if unrecognized and misunderstood, would be converted into incurable and rapidly fatal albuminuria, dependent on true permanent kidney disease, such not having existed previous to the irritation.

I am persuaded that many cases of this kind of albuminuria exist, wherein local irritation sets up renal disturbance and uræmic poisoning, that direct our attention to the examination of the urine, in which we then find albumen in varying quantities. In how many instances of catheter-passing for stricture of the urethra, of lithotrity, especially if the crushing has to be done often, or if not so frequently, yet producing great irritation and disturbance; in how many cases of operative procedures about the genito-urinary organs, especially if complicated with repeated manipulations, do we not know that it may be said, "We examined the urine up to the very morning of the day of our operation, we carefully investigated the conditions of the bladder and of the kidneys, and found nothing wrong; all was well; our patient had not a bad symptom for some days after that on which we commenced our manipulations; then suddenly he fell into an alarming state—the uræmic or albuminurial condition—and we very nearly lost him;" or, as has often had to be said, "our patient slipped through our fingers?"

The apparently sudden onsets of the gravest albuminuria symptoms are really not so dangerous as when they creep stealthily over the patient; because in the former instances they often assume such an alarming form that the surgeon desists from any operative, or even dressing-of-wound measures; without, perhaps, a suspicion that he is actually the cause of all the danger—and desisting simply because of the hopeless condition of the patient; the symptoms subsiding with the cessation of irritation, and finally disappearing altogether, unless the irritation be renewed. Whereas, when symptoms come on gradually they may not be recognized until they have slowly passed into the gravest, and then the functional disturbance may have proceeded into organic disease and become incurable. "The symptoms may not be recognized," I have said. They absolutely may be unrecognized; or, practically, they may be, because the surgeon may not for one moment have thought that his operative procedures, or his manipulations, were at fault—were, in fact, the cause of all the ills; and hence, though he may take the usual corrective steps for the recovery of his patient, yet he must of necessity be foiled, since he is unaware that the one hand, by continuing operative measures, or even dressings, is undoing what he is seeking to do with the other hand, wherewith he prescribes internal medicines; his best efforts are countervailed—by the renal mischief he thinks, but, in reality, it is by the continuance of irritation on his own part.

Cases of Addison's Disease, with Remarks on its Cause.

In the *Lancet*, January 12th, 1878, Dr. ROBERT MUNRO says—

I believe that the primary cause of Addison's disease must be looked for in a functional disturbance of the whole nervous system, and that the undoubted close relationship of the lesion in the capsules is as yet undemonstrable. In these circumstances, we must still go on recording pathological observations; and I bring the two following cases, which have recently come under my notice, before the profession, believing them to present points of interest:—

CASE 1.—W. R., a young man, unmarried, and a skinner by trade, suffered for some years, before he came under my care, from disease of the liver and heart, for which he was treated by my predecessor, Dr. Aitken. I saw him for the first time, in the latter part of 1869, and, upon examination, found the liver slightly enlarged, the heart hypertrophied, with valvular disease, and a somewhat sallow complexion. As the action of the heart was strong, I prescribed digitalis with a solution of taraxacum. I saw him occasionally, for a few years afterward, at my consulting rooms, but remarked nothing further in his case. He was able to follow his occupation pretty regularly, and appeared to be improving. After this, I lost sight of him for about two years, till the latter end of 1875, when he complained of great weakness. I then noticed that his skin was bronzed. Judging from the physical examination, the heart disease did not appear to be worse, and there were no secondary symptoms due to it, nor was there any increase upon the former size of the liver. During the rest of his life (about six months) the discoloration became gradually deeper, till shortly before his death his hands were as dark as those of a negro, and some portions of his body, especially the region of the pubes and a circle around the nipples, were actually black. On account of the peculiarity of the case, I asked Dr. Borland to see him with me, when, of course, Addison's disease was the chief topic of conversation. Both agreed that a post-mortem examination would be desirable, as the only means of settling the question as to the existence of disease in the suprarenal capsules. He died about a fortnight afterward, at the age of thirty years, and after much entreaty we were allowed to make a slight inspection of the body. We removed only the kidneys and suprarenal capsules. The right capsule was so soft and pulpy that it actually disappeared through my fingers in the act of removing it, and there remained only three or four irregular masses, of a putty-like substance, and of the consistence of soft clay, but varying in size from a pea to a field bean. With greater care I removed the left capsule whole. It was larger than the normal condition, and contained hard tubercular nodules, which here and there appeared to be breaking up into a pus-like fluid.

CASE 2. "Mrs. P., a farmer's wife, aged thirty-four years, consulted me about the beginning of March, 1877, about a discoloration of her skin, which both herself and friends had noticed coming on gradually for the last twelve or fourteen months. She complained of general weakness, palpitation, loss of appetite, irritability of the stomach, and vomiting. On making further inquiries, I ascertained that she had previously been a very healthy, well-colored woman, and had had no illness that she could remember, except a slight attack of rheumatic fever six years ago. She had a family of three stout, healthy boys, and was again four months advanced in pregnancy. Both her parents were alive and healthy. Her greatest complaint was the excessive vomiting, to relieve which I ordered a diet of milk and lime-water, with beef-tea and a little brandy. This was retained on her stomach, and for several months formed almost exclusively her daily nourishment. During this time her chief complaint was weakness. She managed to rise and sit in a chair half the day, but felt unable and disinclined for any exertion. On the evening of June 1st I was sent for hurriedly, and on arriving found she had had a convulsion, with foaming at the mouth and twitching of the limbs and face. She remained unconscious for about six hours, with slow breathing and labored pulse. The heart was feeble and weak, beating, however, at the rate of 120. For a day or two she continued drowsy and listless, would ask for nothing, and only reply "Yes" or "No" when

repeatedly asked a question. After this attack she rallied considerably, and was able to drive out with her husband, but complained of noise in her ears, dimness of sight, and faintness. On the 16th of July I was again sent for, and found her in labor; pains frequent, but weak. The head was presenting well down in the pelvis, and as she was faintish, and fearing delay might be dangerous, I delivered her with instruments. The child, though apparently healthy and well nourished, only survived about twenty minutes. The patient progressed favorably, her appetite improved, the sickness abated, and even the skin seemed better-colored; so that by the end of the third week she was able to walk about the house. Four weeks after her confinement (August 6th) she went to the dairy, and on returning was seized with a fit of shivering, which proved to be the commencement of an attack of rheumatic fever. On the second day the temperature was 103.3°; pulse 130, weak, and compressible; and the pains exceedingly acute. I put her on ten-grain doses of salicylic acid every four hours for one day, and afterward three times daily, with the effect that on the fourth day the temperature fell to 98° and the pains almost entirely disappeared. Shortly after this I noticed that the discoloration of her skin had become much deeper and of a smoky tint, approaching to blackness, over the region of the pubes and areolæ. The gums were tender and discolored; tongue thick and dry, with a brown stripe on each side; temperature 97.8°; urine scanty, but clear, and deficient in solid constituents, with a specific gravity of 1.020. About this time I had a consultation with Dr. Munro, who entirely agreed with the treatment and my suspicion of Addison's disease. From this time she gradually became weaker, and lingered on for about a fortnight, being much troubled with hiccough and pains in her hands and feet. Her stomach would retain nothing, and the slightest exertion, even raising her head from the pillow, brought on faintish turns. The skin continued soft, and was occasionally covered with a cold, clammy sweat. Temperature 97.8°. She continued conscious till within two hours of her death, when low muttering delirium set in, which ended in coma and death on August 25th. Dr. Munro and I were fortunate in getting permission to make a post-mortem examination. The bronzing of the skin was less distinct than during life. The kidneys, liver, spleen, heart, and other organs appeared healthy. The left suprarenal capsule was much larger than the right, and in cutting through it about a teaspoonful of a yellowish pus-like fluid escaped. The normal structure of both was converted into hardened cheesy nodules, which here and there grated under the knife."

(*e*) EXANTHEMATOUS DISEASES.

The Use of Ozonic Ether in Scarlatina.

Dr. JOHN DAY, of Geelong, Australia, according to the *British Medical Journal*, December 8th, 1877, has used, in a considerable number of scarlatinal cases, a solution of peroxide of hydrogen in ether, mixed with lard, in the proportion of one of the former to eight of the latter. He has also used, when throat affections were at all severe, a gargle, consisting of two drachms of the ethereal solution of peroxide of hydrogen to eight ounces of water. He alleges, regarding his plan of treatment, first, that the peroxide, being a powerful oxidizer, and, therefore, disinfectant in a concentrated form, destroys the poison germs before they are thrown off from the body, so that the patient "is enabled to breathe a pure atmosphere, instead of, as under ordinary circumstances, an atmosphere contaminated by the poisonous emana-

tions from his own body;" secondly, that, in consequence of the rapidity with which the scarlatinal poison is destroyed, desquamation of the cuticle seldom occurs; thirdly, that it places in the hands of the practitioner a positive means of arresting the spreading of the disease.

The notes of fifty-five cases treated on this plan by Dr. Day, between April, 1873, and April, 1875, were laid before the Council of the city of Melbourne, as the Local Board of Health, when they were ordered to be printed, and copies forwarded to the several Local Boards of Health in the colony. The notes show that fifty-three of these cases recovered; but the result was not mentioned in two cases, and we can, therefore, only speak as to fifty-three. This, of itself, although good *primâ facie* evidence of its utility, as no other treatment was adopted, is not sufficient, as it is well known that the disease prevails, in a very mild character, for lengthened periods, and then assumes, for a longer or shorter time, a malignant form. That the cases were very mild, is rendered probable by the comparative rarity of sore throat. The most important part of the evidence is the extreme rarity with which other children living in the same houses became affected with the disease; indeed, with the exception of two instances, in which the inunction was imperfectly carried out, it was confined to the person first affected. Instances are mentioned of children being attacked in one school where there were ten boarders and twenty-five day scholars; in another where there were six boarders and about sixty day scholars, without any infection of the other children. The exceptions almost prove as much, because, in one case, the inunctions were continued for five days only, and four other children became infected a few days after they were left off; and, in another, two servants had a slight attack, and did not use peroxide, when two children and an adult contracted the disease.

These statements are such as to render a trial of the plan advisable, not only for the sake of the patients, but of the public. There is no doubt that peroxide of hydrogen is a very unstable compound, which readily parts with one atom of its oxygen, and also liberates, with some degree of violence, the oxygen in the oxides of certain metals, and thus reduces them to a metallic state. The ethereal solution has a certain amount of stability, owing to the affinity of ether for the peroxide.

OBSTETRICS, AND DISEASES OF WOMEN AND CHILDREN.

I. OBSTETRICS.

Prolapse of the Gravid Uterus.

At a meeting of the Obstetrical Society of Edinburgh, reported in the Edinburgh *Medical Journal*, January, 1878, Professor Simpson read for Dr. HAMILTON, of Hawick, the following case of sudden prolapse of the gravid uterus:—

I was consulted on the 1st of July, by Mrs. O., twenty-four years of age, married, pregnant four months, complaining of a swelling of the right labium pudendi, of pain in the back, and of difficulty of sitting or walking. The swelling she had noticed coming gradually for about ten days; at first she felt the part hot, and on walking, slight stiffness, which had gradually increased. The skin was hot, pulse 100; tongue furred; the bowels had been constipated. On examination the labium was swollen to the size of a goose's egg, red, œdematous, and painful to the touch. No fluctuation could be detected. I ordered opening medicine, rest, and light diet. Professor Simpson I consulted by letter at the time. Two days afterward fluctuation could be felt, poultices were applied, and the following day the abscess had burst through the vaginal wall. The opening I slightly enlarged, and the part healed rapidly. About ten days after the opening of the abscess (at which time she thought herself perfectly recovered), when lifting a bucket of water, she felt a sudden pain in the back, which compelled her to take to bed. She was able to get up the following morning, but when up she again felt a swelling which she thought similar to the previous one, but without pain in the part. I was then again sent for. She was now complaining of a severe dragging pain across the loins, and of inability to sit, owing to the swelling. She had suffered during the night from vomiting, and had great difficulty in making water. She had a quick pulse, but no increase in temperature. I found, on examination, that there had been complete descent of the womb, the cervix distinctly protruding, and the vaginal mucous membrane everted. I attempted replacement in various ways, but without effect. She was kept in bed and soothing medicines given. On the fifth day labor pains set in. I was sent for shortly after they were felt. On my arrival I found the os dilated to admit one finger; in so doing I felt the membrane. I stuffed the cervical canal with a sponge, which I secured by a bandage coming between the legs and over the os, attached at each end to a binder round the abdomen. Four hours afterward the os was dilated sufficiently to admit two fingers. I was then able to grasp a foot of the fœtus, after rupturing the membranes. I afterward removed the placenta, and there was little hemorrhage. I then easily replaced the uterus. This patient made a very good recovery. She was confined to bed only twelve days, and since getting up there has been no tendency to prolapse. The prolapse arose, apparently, in this case, from the weak state of the vaginal wall, after the abscess.

Professor Simpson remarked, on the rarity of the case, "while elongation and

hypertrophy of the cervix with descent was not uncommon, prolapse of the entire organ was comparatively of rare occurrence in the impregnated female."

The Position of the Placenta Relative to Sex of the Child.

Dr. THOMAS P. TUCKEY, of Castletownroche, writes to the *Medical Press and Circular*, March 13th:—

There is no subject connected with physiology so interesting, to my mind, and at the same time so obscure, as the laws which regulate reproduction. Why one woman will have no children which are not of the male sex, and another will have none except girls, while a third will bear them in equal proportion, or alternately male and female, is a question which has never been answered satisfactorily. Since I have been engaged in the practice of midwifery, I have never ceased laboring to throw some light on the subject. My labors have been too limited, and my experience of too short a time, to enable me to bring forward anything conclusive on the matter. I shall be satisfied if I have engaged the attention of those who have far greater opportunities than I am ever likely to have of elucidating the matter. I do not forget—and I hope I never shall—the caution of my venerated master, Mr. R W. Smith, who was wont, in his lectures, to caution his pupils against rushing into print, and bringing forward a few facts as proofs of a pet theory, and who used to hold up, as an example to those who have the *cacoethes scribendi*, the case of Harvey, who withheld from the world for so many years that discovery which has made him immortal, until he excluded every element of error from that grand law which he knew to be indisputable. Harvey's discovery, however, was made in days when medical works were comparatively few, and journals fewer still—if there were any—and, therefore, any statement, brought forward by a man of mark was likely—for good or ill—to influence, for a long time, his successors. We all know how long the classic medical writers of early times influenced the writings and practice of their successors, and how anything at variance with preconceived opinions was received with suspicion, if not with open opposition and derision. Harvey, doubtless, knew this, and, therefore, was more cautious in bringing forward his discovery—a discovery which he knew must revolutionize medicine. No such objection now holds; so numerous are the medical periodicals, that an error is no sooner put in print than it is refuted; while statements which are at first weak are caught up by the numerous great minds of the medical world, and thoroughly sifted, and if true, placed on a firm and established basis; if false, are relegated to the limbo of merited forgetfulness. I have less hesitation, therefore, in writing the following lines, knowing that my obscurity will prevent my doing any harm if I am wrong, and resting in the hope that if there is anything worthy of notice, some one with better opportunities than I have will work up the subject, and bring forward more facts relative to the matter. It has long been my practice, whether rightly or wrongly—I know I have never done any harm by the practice—in cases of tedious labor in which I have given ergot, or otherwise interfered, to remove the placenta manually, after the birth of the child. I have found that the uterus often contracts spasmodically in such cases, and delays greatly the expulsion of the after-birth. It has been my experience that such interference does no harm, and in some cases greatly expedites the termination of the case. This, however, is foreign to the subject, except in this, that on looking at the sex of the child I have been invariably able, without turning my hand round the uterus, to find the position of the placenta. In cases of female children I have found the placenta to be attached to the left side of the

fundus; when the sex is a male, to be on the right. Over and over again I have found this to be the case. I have listened with the stethoscope before birth, and have ascertained the position of the placenta by the bruit, and have settled in my mind the sex of the child, a fact which has afterward been verified at its birth. I here give a list of such as I have kept a note of since the fact first struck me as worthy of remark. Several others occurred before I was sufficiently impressed—by the continual recurrence of the position of the placenta, with regard to the sex of the child—to think them worthy of a place in my memory.

NAME.	POSITION OF PLACENTA.	PRESENTATION.	MODE OF DELIVERY.	SEX.	OBSERVATIONS.
Mrs. O C	R.	Head.	Forceps.	M.	
" —	L.	"	Natural.	F.	Ascertained by stethoscope before birth.
" C.	L.	"	Craniotomy.	F.	Funis prolapsed, pulseless; passages very small.
" S.	L.	"	Natural.	F.	
" H.	R.	"	Forceps.	M	
" —	L.	"	Natural.	F.	Ascertained by stethoscope before birth.
" M.	L.	"	"	F.	Manual interference for great hemorrhage.
" M.	R.	"	Forceps.	M	
" D.	L.	"	Natural.	F.	Three female children, single placenta.
" R.	R.	"	Forceps.	M	
" B.	R.	Head of breech	Natural turning.	M.	Males (two), single placenta.
" R.	R.	Cross-birth.	Turning.	M	Boy; dead.
" D.	L.	Head.	Craniotomy.	F.	Hydrocephalic.
" Tr.	R.	Breech.	Brought down feet.	F.	Considerable hemorrhage.
" Sw.	L.	"	Born before seen; manually, I believe.	F.	Born dead.

I give the above table for what it is worth; were I to lay down dogmatically that the placenta is always attached to the left side of the fundus, or of the uterus, in cases where the child is a female, and as invariably to the right side of that viscus when the child is a male—I only say that in my experience I have, up to this, found it to be always the case, and give such instances that they may turn the attention of others to investigate the matter more closely. It is an old saying, that men endeavor to believe to be right what they think to be right. It seems such an easy solution of the matter that the right ovary should be intended for the production of male and the left for that of female children; it leads me to such a long train of speculation on the proposition that a woman has only sons, because of atrophy, or other diseases of the left ovary, or *vice versa;* it opens up such a field for the stethoscope in determining the sex before birth, and thereby modifying the treatment of cases of contracted pelvis—cases which might be delivered naturally if the child were a female, but would require instrumental interference if it were a male; that I am, to a certain degree, prejudiced by the facts I have collected. I hope that the profession may deem my remarks worthy of further investigation, and either refute or confirm them on their merits.

Chloral Hydrate as a Local Antiseptic and Disinfectant in Puerperal Diseases.

Dr. J. A. LARRABEE writes to the Louisville *Medical News*, February 23d, 1878 his views of this use of chloral hydrate:—

Widely different views are entertained concerning the contagiousness of so-calle

puerperal fever. Not more united are the ideas advanced in regard to treatment. Great medical talent and acknowledged skill have been arraigned upon either side. In regard to the contagious or infectious nature of the disease, these opposing opinions come alike from men whose eminence in the profession and in society entitle them to respect. An exhaustive paper, then, upon this subject, would simply contain that which should be found in every doctor's library. The one great thing in which the community, no less than the physician, is interested, is our ability to prevent puerperal peritonitis or stay its progress.

I have several times called the attention of the profession to the disinfectant, deodorizing, and antiseptic properties of chloral hydrate. (See Virginia *Medical Monthly and Transactions of Medico-Chirurgical Society.*) Recently, however, I have had an opportunity to observe these properties exerted under most unfavorable circumstances. At the time I took medical charge of the Forest Hill Lying-in Hospital there had been four deaths in a period of a few days from puerperal fever, being, as I believe, peritonitis of the septic form. Everything was in disorder and confusion. Carbolic acid perfumed the place; it was used for everything—lotions, washes, etc.—under the prevalent but mistaken idea of its antiseptic properties. I immmediately substituted chloral water, directing that in each delivery it should be well used. Thirty-nine deliveries have been accomplished since that time without any untoward result. The immediate effects of the irrigation or lotion are described by the patients as cooling and pleasant.

In all accouchements, whether liable to contagion from without or not, there exist the necessary conditions within the uterus and vagina for setting up septic poisoning, *de novo*. There is, in all cases, an odor to the lochia, plainly discernible at the end of the first twenty-four hours. If this condition remains uncorrected, and the nurse neglects to attend to her duties, there is great danger of septic poisoning. A solution of chloral of mild strength, in water, and by means of the douche or fountain syringe, removes at once not only the odor, but, I am fully satisfied, destroys the noxious influence of such poison. Carbolic acid, although it has been much lauded, is, in my judgment, over-estimated, is entirely unreliable, and merely substitutes its own odor for that of the disease.

Viscum Album (Mistletoe) as an Oxytocic.

Dr. W. H. Long, Surgeon United States Marine Hospital Service, writes to the Louisville *Medical News*, March 16th, 1878, as follows:—

I desire to call the attention of the profession to the value of mistletoe as an oxytocic. An experience of ten years with this remedy enables me to speak confidently as to its properties.

I was first led to its use by the fact that the farmers in the section of the country where I formerly practiced medicine gave mistletoe to such of their domestic animals as failed to "clear" themselves, or expel the placenta after bringing forth their young, to promote its delivery.

I used it first in 1867, when I was attending a case of labor several miles distant from my office. The second stage was protracted to an unusual length of time by inefficient action of the uterus. The head was engaged in the inferior strait and pressing on the perineum. I had no ergot, and had some mistletoe gathered; an infusion was made, and half a teacupful given to the patient. Strong contractions set in in twenty minutes, and she was soon delivered. After this case I had no hesitation in using viscum when occasions required. Many times, after failing to get

any effect from repeated doses of ergot, I have administered viscum in decoction, and always had the satisfaction of producing efficient pains in from twenty to forty minutes. I do not now recall a single instance in which it failed to stimulate the uterus to contract, and I have used it in a large number of cases.

Since I have resided in this city I have called the attention of many physicians to it, and have furnished several with samples, both of the dried leaves and fluid extract, and, so far as I know, they have been much pleased with its effect.

I believe it to be far superior to ergot:—

1. Because it acts with more certainty and promptness.

2. That instead of producing a continuous or tonic contraction, as ergot does, it stimulates the uterus to contractions that are natural, with regular intervals of rest. Consequently it can be used in any stage of labor, and in primiparæ, where ergot is not admissible.

3. It can always be procured fresh, does not deteriorate by keeping, and is easily prepared.

I have used viscum in many cases of menorrhagia and hemorrhage from the uterus, with gratifying results. I have taken pains in such cases to give ergot and mistletoe a competitive trial, with the object of testing their relative merits, and I unhesitatingly pronounce in favor of the latter. Indeed, cases in which ergot given in powder, decoction, and fluid extract failed to give any relief, the viscum acted promptly.

A few months since a lady applied for relief, whose menses appeared every two weeks; the flow was profuse, and lasted eight or ten days, giving her but a few days' intermission. Though I had not been using ergot for a long time, I prescribed the fluid extract in teaspoonful doses, and without effect. I then gave her freshly-powdered ergot in twenty-grain doses, with a like result. I then gave her fluid extract of viscum in teaspoonful doses. The flow which was then on her was arrested the second day. She menstruated again in three weeks, lasting four days (her usual time), and again in twenty-eight days, and she has been regular as to time, period, and quantity ever since. The menorrhagia had lasted her about six months, and she was anæmic and much reduced in consequence.

In post-partum hemorrhage the results have been no less satisfactory than in labor and menorrhagia, firm contractions of the uterus being secured in from twenty-five to fifty minutes after administering from one to two doses of the mistletoe. I had one patient in the country who was predisposed to hemorrhage, and she always had profuse and alarming hemorrhage after each childbirth. She had one child and a terrible hemorrhage before I ever saw her. I attended her in labor four times, and the first three the same sudden and alarming hemorrhage took place. The flow of blood was so great that the physician had no time to tie the cord or look after anything but the mother. In her fifth labor (the fourth of my attendance), I administered freely of the infusion of viscum, beginning with the commencement of the second stage. The hemorrhage after delivery was insignificant. I learned from her husband a short time since that she has had two children since my last attendance, and the same terrible hemorrhage each time.

Viscum may be given as an infusion, tincture, or fluid extract. The most convenient form is the fluid extract. Formerly I used the infusion altogether, which is made by taking two ounces of the dried or four ounces of the green leaves; pour on these one pint of boiling water, cover closely, and allow to stand until cool enough to drink. Two to four ounces may be given at a dose, and repeated in twenty

minutes if necessary. The green leaves impart a disagreeable taste that is lost in the process of drying.

I have also used an alcoholic tincture, made by taking eight ounces of the dried leaves and saturating them with boiling water, and adding alcohol to make one pint. I do not think this as efficient as either the decoction or fluid extract. It should stand ten days before ready for use. Viscum makes a nice fluid extract, of a dark brown color, and possesses all the virtues of the parasite.

Lucien Alexander, druggist, corner Tenth and Jefferson streets, has kindly prepared such quantities of the fluid extract as I have used, and nice specimens have also been furnished me by Mr. De Courcy Jones, at John Colgan's, corner Tenth and Walnut streets. These gentlemen will furnish, to all physicians who wish to give it a trial, a small quantity without charge.

The best time for gathering the mistletoe is in November, after a few frosts have fallen, and before the hard freezes, though it may be gathered and used at any period of the year. When gathered it should be at once spread out to dry, as it will mould in a very short time if kept in a box or sack. I have always dried it in the shade.

Viscum abounds in this country, and is found in greatest quantities on the walnut and elm trees, though it grows sparingly on a few others, as the red and black locust, oak, etc. So far as I know, there is no difference, in its properties or strength, made by the kind of tree on which it grows.

The only mention of mistletoe made in any medical work that I have seen, as regards its effect on the uterus, is in King's Eclectic Dispensary, where caution is given (in administering it for other diseases), not to give to excess, as "irritation of the uterus" may result.

I ask the profession to give this remedy a fair trial, feeling assured that where this is done without prejudice, ergot will occupy a secondary place in the list of oxytocics.

Case of Inertia of the Uterus Treated by Electricity.

Dr. MARCUS GIVEN, Medical Officer of Blessington Dispensary District, gives this case in the Dublin *Journal of Medical Science*, May, 1878:—

Mrs. J., aged twenty-two; anæmic complexion; pregnant for the second time; the first child—now twelve months old—was an eight months' child, but she now believes herself to have arrived at the full time. In the morning and early part of day of February 18th she suffered from pains in the back, accompanied by slight hemorrhage; but when I saw her in the evening both had stopped; and on making an examination, per vaginam, found the uterus very high, os dilated to the size of a sixpence, through which I felt a natural presentation. The pains did not return again until the evening of the 28th, when she said they were very severe, and lasted the entire night, but ceased in the morning (March 1st). When I saw her, about 9 A.M., I found the os dilated to the size of half a crown, and the uterus much lower in the pelvis; but, as she appeared weak and exhausted, I gave her 20 grains of chloral, which had the effect of producing five hours' refreshing sleep; she then got up and walked about the room at intervals during the evening, but the pains did not return until 11 P.M., and again lasted during the night and ceased in the morning (March 2d), when I found the os dilated to the size of a five shilling piece. Being again weak and exhausted, I gave 20 grains of chloral and 10 minims of liq. opii. sed.; and determined, when I returned in the evening, to try if electricity would not hasten her labor. On arriving, at 6 P.M., I found her sitting up, quite free from pain, and had slept a good deal during the day. I at once got her

put to bed, and applied one conductor of the electro-magnetic battery on the sacrum and the other on the fundus uteri. In about five minutes there was distinct and firm contraction of the uterus, accompanied by the usual pains; this continued about five minutes, when I stopped the battery and gave her a hypodermic injection of ergot, hoping that the contractions would now continue, without having again to resort to the battery; but in this I was disappointed, for, although the pains continued, they were so weak that I could not perceive any contractions of the uterus, by placing my hand on the abdomen; so I applied the electricity as before, with the effect of at once producing a firm contraction, during which I ruptured the membranes, and allowed the escape of a large quantity of liquor amnii. I now stopped the battery, thinking that the uterus, not being so much distended, would contract without any artificial aid, but I was again disappointed; so I now used the battery with each pain (stopping it between them) and in less than an hour she gave birth to a small, healthy female child; but, on applying my hand to the abdomen, I distinctly felt another in utero, and on examining, per vaginam, found a natural presentation. I now kept up firm pressure on the uterus for half an hour, but as no contraction ensued, I again resorted to electricity, with the same happy result, ruptured the membranes, and in a few minutes she gave birth to a small, feeble male child, and in five minutes more a large single placenta came away (with both cords attached near the centre), leaving a firmly contracted uterus; but, remembering its previous relaxed state, I gave another hypodermic of ergot, although I could not say the first had had any effect; however, no hemorrhage ensued, and up to the present (March 14th) mother and both children are doing well.

An Anomalous Case of Rotation of the Body after Delivery of the Head.

Dr. E. S. Dunster, of Ann Arbor, reports a case of this kind to the Michigan *Medical News*, March 10th, 1878 :—

On the 29th of December last I was called in consultation by Dr. J. D. Hartley, of this place, to a case of puerperal convulsions. The patient had been seen by Dr. H. only a few hours previous to sending for me, so that her condition as to the kidney complication had been unrecognized and no measures had been taken to ward off the dangerous complication of convulsions. She was a primipara, twenty years of age, short and somewhat stout, but apparently well built. Her condition was apparent at a glance, by which is meant that she presented the pasty, œdematous, almost transparent look so characteristic of extreme albuminuria. She had passed about an ounce of smoky-colored urine, which, fortunately, had been preserved. This I tested at once, by heating it in a common spoon, and to the eye it seemed as if it were more than half solid albumen. The convulsive seizures were not very pronounced, and, as the patient was already under the influence of chloroform, the only additional treatment suggested was to give, by the rectum, a full dose of chloral hydrate and bromide of potassium, and deliver as soon as dilatation of the os would permit. The chloral and bromide produced a most happy effect—not merely in quieting the nervous disturbances, but, under their influence, the os dilated evenly and rapidly, and in little over an hour I was enabled to apply the forceps. The head was resting at the brim, with its long diameter nearly in apposition with the transverse diameter of the pelvis, and the occiput to the right side. No abnormality of the pelvis was detected on the examination, and the blades of the forceps were adjusted with perfect care. Delivery, however, proved unusually difficult, and

required all my strength during six successive pains before the occiput was brought down and well out under the arch of the pubes. At this time, on account of the extreme distention of the perineum, I removed the blades, and hooking two fingers in the rectum, stretched the perineum forward, after the method described by Dr. Goodell. Delivery was accomplished in two additional pains, and not even the fourchette was ruptured, as is almost invariably the case in primiparæ. The face turned square toward the inner surface of the left thigh of the mother, and the left shoulder of the child was behind the symphysis pubis, the right resting high up in the hollow of the sacrum. With the next pain no advance occurred, and, accordingly, I hooked my forefinger underneath the right axilla, in order to make traction in the direction of the outlet of the parturient canal. Applying tractile force in this way on the coming on of the next pain, the child was apparently locked in some way, but no obstacle could be detected. The extracting force was therefore continued, and during the third pain the head, to my surprise, began to rotate from left toward the right, so that the face of the child looked first directly upward, and then continued the rotary movement clear over, until it looked in the reverse direction from that in which it was first situated. This movement was steady and occupied more than a minute, and was wholly uninfluenced by my fingers. I called Dr. Hartley's attention to it, as something out of the usual line, and he saw it take place. This movement, which was caused by the internal rotation of the shoulders, suggested at once, in connection with the great difficulty in the forceps delivery, a pelvis narrowed antero-posteriorly, so that the shoulders could not easily pass through in the direction in which they lay when the head was brought down. It will be remembered, too, that the head laid transversely to the brim. On further examination this was found to be the case, and thus an easy explanation was made of this abnormal movement. The child's heart was beating after delivery, but it never breathed, and, in spite of long-continued and persistent efforts at resuscitation, by the Prague and other methods, it died. There was a laceration of the vaginal wall, opposite the descending ramus of the pubes, one inch and a half in length. Could it have been cut by the anterior edge of the right blade of the forceps? I think not, for it was not a straight cut at right angles to the line of the ramus, as it must have been if produced by the blade, but it was irregular and nearly parallel to the line of the ramus. It seems more rational to suppose that it was a laceration following directly from the immense pressure which was made by the occiput over this prominence of bone in the forced delivery, and it may well be illustrated by the lacerations which are sometimes seen on the cutaneous surface from violent bruising or friction, as when one is thrown forcibly to the ground. Certainly, with the blades adjusted as were these, the anterior edge could not cut a slit like that observed in this instance. In two or three instances of forceps delivery I have seen the same kind of a tear produced on the child's scalp, when it could not be properly said that the blade cut the scalp. There were no convulsions after delivery, and the mother made an excellent, though somewhat protracted, recovery. The urine had to be drawn for eight days. The vagina was freely washed out with antiseptic solutions, and salicylate of soda and quinia were administered internally. The laceration closed without contraction, and left no mechanical obstruction to delivery in recurring pregnancy. Had the complication arising from the albuminuria been detected, and premature labor at eight months been resorted to, all the difficulties in delivery would have been evaded; but the patient was not under the care of a physician until labor began. The induction of premature labor in cases of severe albuminuria

is fully justified by experience, and I hold it to be one of the most valuable improvements in modern midwifery.

Case of Rupture of the Perineum, with Laceration of the Cervix Uteri.

Dr. THAD. A. REAMY communicates to *The Clinic*, January 19th, 1878, the following case:—

Mrs. L., the wife of a prominent attorney of Cleveland, O., consulted me, last April. Her symptoms were profuse and intractable leucorrhœa, constipation, lumbar pain, neuralgic attacks in the ovarian regions and dragging sensation in the pelvis. She had been treated for some time for uterine ulceration, without experiencing any relief.

Examination disclosed a rupture of the perineum to the anal sphincter, caused at the birth of her first and only child, five years previously, and a double laceration of the posterior lip of the cervix, one fissure half an inch in depth the other insignificant. The uterus was also slightly retroflexed.

It was decided to operate first upon the cervix and subsequently to restore the perineum. The operation upon the cervix was performed on May 2d, in the manner described by Emmet. When the cervix was drawn down, preparatory to denuding, some granular growths were found to occupy the inner angle of the deep fissure and extend a short distance into the cervical canal. These granulations bled freely when touched by the nail and corresponded in appearance to the "raspberry-like" granulations described by Courty in his work, *Traitè Pratique des Maladies de l' Utèrus.* These were shaved off by the scissors. The fissure was freshened and closed by two silver sutures. On the eleventh day the sutures were removed; perfect union had taken place and the shape of the cervix was found to be restored.

The operation upon the perineum was performed on May 25th, in the usual manner; employing the quilled suture. The deep sutures, however, caused so much irritation and pain, with an unusual degree of swelling, that they had to be clipped on one side on the morning of the third day, and removed altogether on the morning of the fourth. It is quite likely that the sutures had been drawn rather tightly, thus contributing to the unfavorable condition of the parts. In spite of the early removal of the deep sutures, union, internally, over the whole field, and at the anterior angle, internally and externally, was perfect. At the lower angle, however, externally, the point where union is often difficult to get, owing to the action of the anal sphincter, there was in this case, non-union for the length of half an inch and to the depth of one-fourth of an inch. This was completely remedied a few days later, by a slight supplemental operation.

Results.—Complete relief, up to the present time, from all the distressing symptoms which existed prior to the operations. The granulations above referred to were afterward subjected to microscopical examination and found to be largely epithelial in character, so that some apprehension was felt that the growth might recur. These fears have not, however, been realized.

This case may be instructive in the following particulars:—

1. It illustrates how easily a mistaken diagnosis would indicate cauterization of an everted cervix, under the belief that it is ulceration of the os.

2. This, with quite a number of other cases of a similar character, which I have submitted to the same treatment, supports the sanguine expectations held by Dr. Emmet regarding this operation for the restoration of a lacerated cervix.

This case also illustrates the truth of the proposition, that a partially destroyed perineum of long standing is just as appropriately the subject of surgical restoration as those where the destruction is more extensive. The remarkably short time in which union occurred in the perineal operation in this case is worthy of note.

The Treatment of Puerperal Pyrexia.

Dr. JAMES GREY GLOVER writes to the *Lancet*, February 2d, 1878:—

In using the expression, "puerperal pyrexia," I intend to include all cases of high temperature not associated with obvious external inflammation, as in the breast, or with obvious infection from the common infective diseases. Presumably, the local lesion is uterine or periuterine; for, in all the cases I have in my mind, there has been more or less pain in and tenderness over some part of the uterus, with a good deal of abdominal distention. There has been also, generally, a quick pulse, varying from 100 to 130; some degree of wandering, and cessation of lochial discharges and the secretion of milk. The temperature in all the cases has been taken carefully with the thermometer, and has varied from 104° downward. There can be no difference of opinion as to the disagreeable significance of such clinical phenomena, than which none are more harassing and unpleasant to a medical practitioner. I would say, in passing, a word in praise of the thermometer as a most invaluable guide as to the course of such symptoms. It is even more valuable than the pulse, as more absolute, and less under the influence of passing circumstances. It would be more satisfactory to give a pathological definition to such cases. But that is not my object, even if it were within my power, as it is not. There is this good reason for not speaking dogmatically about their pathology—that when treated in the way I am about to indicate, they very generally get well, and do not give an opportunity for post-mortem investigation. To complete the clinical description of such cases, I would say that in none of them has suppuration taken place. They have got well without any discharge of pus, simply in the way of, generally, a gradual, sometimes a rapid, fall of temperature and of the frequency of the pulse, a gradual subsidence of the tympanites, and disappearance of the pain and tenderness of the uterus.

As my object in this note is strictly practical, I may be excused for putting almost into the form of a prescription the treatment under which, I am confident, the best results will be obtained. First, a dose of quinine and iron every three or four hours. The following is a good form in which to give these: quinine, two grains; tincture of iron, ten minims; spirits of chloroform, ten minims; syrup, half a drachm; distilled water, an ounce. Secondly, a dose of opium, every three, four, six, or eight hours, according to the pain, without ipecacuanha, which may set up sickness, and without calomel, which may set up unnecessary irritation of the bowels. It is astonishing how kindly women with uterine pain take to opium, or would be so, if the fact were not so familiar in practice. The dose of opium, say half a grain, is best given in a small pill. Thirdly, a large linseed or bran poultice over the stomach, repeated every three or four hours. A little laudanum in it often adds much to its soothing effect. Fourthly, and very particularly, vaginal injections, at least twice a day, of warm water, with a little Condy's fluid in it. The diet should consist chiefly of good beef tea or chicken broth, with generally a small regulated allowance of brandy, say a dessertspoonful every three or four hours. Sometimes the brandy is best given with arrowroot.

Of course I do not mean that this treatment will save every puerperal woman

who goes wrong pyretically within a short time of her delivery. But I believe it will best control local lesions, and the febrile condition, and the tendency to blood poisoning, which forms the chief risk of such cases. The old treatment, by general and local bleeding, mercurial action, and purgatives, seems to me entirely superseded by more recent views of the nature of these cases and experience of the action of other remedies. Even laxatives have to be given carefully, or they do harm by irritating sore and sensitive parts in the pelvis, though it is right to add that the above treatment is apt to produce constipation, which should be obviated, as the acute symptoms subside, by enemata and other gentle measures.

On the Management of Natural Labor.

Dr. ALEXANDER BAIRD writes to the Edinburgh *Medical Journal*, November, 1877:—

Very frequently, even in primiparæ, we find that labor has been begun and finished in such a short time that the patient herself feels agreeably surprised that foundation for her dread has been but slight. She recovers without any bad symptoms consequent on the rapid dilatation and contraction of the uterus. This is the condition of affairs which pleases alike patient and attendant; and hence it behooves us to consider how, in most cases, it can be brought about, so rendering unnecessary long hours of suffering to the patient and of waiting to the busy practitioner.

In most, if not all, of our text-books we are told that in ordinary cases of midwifery, the less done by the medical attendant the better for the patient, and that our duty, as a rule, is quietly to wait until the membranes are ruptured, then, perhaps, to give a little support to the perineum and receive the child. Generally, when called to a case, we find the os uteri of a size at least equal to that of a florin, and oftener larger; so that we may, leaving nature to effect delivery, wait for a few hours before being permitted to tie the cord.

It is in these cases, and when the os is somewhat dilatable, that I fancy much can be done by a gradual but continuous dilatation of the os by means of the examining finger and between the pains. The patient complains but little of such treatment, and it will be found that, the process being continued, more especially toward the pubic half of the circle, the occiput has more room to descend, and the pains become more regular and efficacious, so that labor is assisted materially, much time being saved.

Dilatation of the os, and that part of the cervix which can be reached by the examining finger, is a practice which has been objected to by some eminent writers; but in most text-books no reference is made to the procedure. I have found it useful in saving time, and, further, it seems to me to be a distinct assistance in the natural process of parturition.

Women often will make some objections to the slightest movement of an examining finger, except during a pain, and this seems to show that it is during the continuance of the pain that our interference is expected. It can scarcely be expected, however, that much good can be effected by attempts to dilate the rigid and contracted circle.

During a pain, the uterus, as it were, attempts to draw itself up over the head of the child, and possibly this may be assisted by gently pushing the cervix in the required direction; but during the interval not only can this be effected, but the relaxed circle can be made so much larger as to give both the longitudinal and circular fibres a much better chance when they are again brought into action Another decided advantage resulting from the more rapid dilatation of the os is,

that pressure of the cervix between the descending head and the brim is much less likely to occur. This is of great consequence during protracted labors, and especially after premature rupture of the membranes, as, no doubt, continued pressure will tend to cause a pulpy and degenerated condition of the parts, liable to end in rupture, or at least, apt to set up sloughing and consequent septic mischief.

At present, too, when we so often get inert preparations of ergot placed in our hands, we anxiously look for some means whereby ergot will be more seldom required. In several cases I have patiently waited the effect of two good doses of the liquid extract of ergot, given at an interval of twenty minutes, and carefully noted the frequency of the pains, which are often not at all accelerated. In similar cases I have found that by gradual manual dilatation the pains have regularly increased in frequency and in effect, so that labor has been finished in a much shorter time than in cases left to nature, even when assisted by ergot.

When the head has reached the perineum, we frequently find that expulsion is so much delayed that the short forceps are brought into use. This, I find, can be often obviated by a very simple expedient, not referred to in text books. When the occiput is fixed against the pubes, and the face is known to be in the hollow of the sacrum, we can give nature much assistance by introducing the index finger per rectum, and, as if with a hook, catching the chin or mouth, we easily bring about the final turn which the head requires to complete its delivery. In resorting to the above expedients in practice I have had nothing but the best results.

Caput Succedaneum and its Treatment.

In an article by Dr. CHARLES BELL, in the Edinburgh *Medical Journal*, November 1877. He says:—

The true caput succedaneum is soft, elastic, and slightly fluctuant in the centre, and is surrounded by a ridge of bony hardness, which is liable to be mistaken by the inexperienced for the edge of a fractured bone. It is unquestionably a congenital tumor, and it always indicates the presenting part of the child. It is found, therefore, almost on every part which is more especially pressed upon by the cervix uteri during labor; but it is found most frequently on the parietal bones, especially the right one. It is invariably the result of pressure, hence it resembles an ecchymosis, both in character and color. Its duration is very variable, as it sometimes remains stationary for some time; but in general absorption commences immediately in the centre, and in consequence the bony ridge is rendered more distinct. The size of the tumor gradually diminishes, so that in the course of a few weeks it entirely disappears. In some instances, however, it remains for a considerable time, and is attended with a sort of crackling sensation when pressed on by the finger, almost as if we were pressing a piece of tinsel. This condition led Chelius to consider it as pathognomonic of ossification of the pericranium.

When the tumor is large it is liable to be mistaken during labor for the bag of waters. I once, when a very young practitioner, committed this error. The labor was tedious, although the patient had had a large family. When I arrived the first stage of labor was well advanced, and on examination I found a large fluctuating tumor, which had quite the feel of the bag of waters. Under the erroneous impression that I should hasten the labor, I scratched what I took for the membranes, but I soon discovered my mistake and desisted. I gave a dose of ergot, which soon terminated the labor. On examining the child's head I found a large bluish tumor occupying the upper part of the right parietal bone, and extending a short way on

the occiput; and on the most prominent part there was a slight abrasion, the mark made by my nail. The tumor remained of nearly the same size for several days, when absorption commenced, and at the end of five weeks there was no trace of either the tumor or the scratch.

Cause.—This swelling is the obvious result of pressure of the unyielding cervix uteri; hence it is most frequently met with in tedious labor. The resistance of the cervix to the advance of the fetal head ruptures some of the blood vessels of the scalp. The effused blood soon coagulates around the edge, forming the hard ridge, while the blood in the centre remains fluid.

Treatment.—It was the custom at one time to lay open the tumor by an incision, and to empty it of its contents, or to apply caustic, for the purpose of inducing suppuration. With such treatment it is not surprising that many cases proved fatal. The treatment in the generality of cases now is, to leave them entirely to nature, unless they should prove tedious, or be of unusual size, when an evaporating lotion may be employed, such as the following:—

R.	Muriat. ammoniæ,	ʒj.	
	Aceti diluti,	℥iss.	
	Spts. camphoræ,	ʒj.	M.
Ft. lotio.			

In general, however, such applications are more for the purpose of showing that you are not neglecting the case, than from their being absolutely necessary.

The Hypodermic Use of Ergotin in Metrorrhagia.

The *Bulletin de Therapeutique*, October 30th, 1877, contains an article on this subject, by Dr. CONSTANTIN PAUL, of Paris. The formula which he has employed has been, ergotin, two grammes, water and glycerin, of each fifteen grammes. The solution assumes the brown color of the extract of ergot, and keeps well, not losing any of its activity in even three months after its preparation. In the fourteen cases in which he has employed this, Dr. Paul has found it succeed in almost a marvelous manner; the hemorrhage, which was always severe and often dangerous, having in all been arrested in sixteen minutes at latest, and in several, much earlier. The patients were either the subjects of more or less advanced cancer of the uterus, or in the puerperal condition. The advantageous action of ergot, taken internally, on uterine hemorrhage, has been long known; but on comparing this with the effect of hypodermic injection, the latter proves of much greater value. The time required for the operation of ergot varies from a quarter of an hour to thirty-six hours; while ergotin arrests the hemorrhage in from five to ten minutes, and in hemorrhages time is everything. Not only is the action of powder of ergot less rapid than the injection, but it is also less constantly efficacious, three or four doses being sometimes required. Ergot in powder also always gives rise to colicky pains, of which the patients complain much; but this is not so with the ergotin. The injection is not very painful, and does not produce any local inflammation, sometimes only leaving a slight hyperæsthesia at the point of insertion. So employed, intolerance of ergotin has never been noted. As Professor Gubler has already observed, it is most remarkable that, while a dose of even four grammes, taken by the mouth, is very doubtful in its action, a dose sixty times less, given by injection, exerts so marked an effect. Certainly there is a far greater discrepancy in the doses required, according to the mode of administration, than is observed with regard to most medicinal

substances. In the cases related by Dr. Paul in his paper, an injection of sixty-six milligrammes of ergotin arrested the hemorrhages in from five to ten minutes.

Warm Baths in Secondary Puerperal Hemorrhage.

Dr. BAILLY, Professeur-Agrégé of the Faculty of Medicine, contributes a paper to the *Bulletin de Therapeutique* for September 30th, on the efficacy of this method of treating secondary uterine hemorrhage, devised by Prof. Tarnier. By secondary hemorrhages he understands those which are produced from the second day to a month after delivery. These are generally due to a congestion of the uterus, usually spontaneous, but sometimes caused by the presence of a foreign body in the cavity, too early getting up, a violent effort, or vaginal injections injudiciously employed. Such hemorrhages are rarely dangerous, but they recur frequently and often obstinately, and cause great alarm to the patient. The ordinary measures for arresting them are far from being always successful, and are usually tedious; and, at Prof. Tarnier's suggestion, the author of this paper commenced in 1874 the trial of warm baths. The success attending the use of these has been so great that he publishes two of the cases in which he employed them. In the first of these the hemorrhage commenced only on the eighteenth day after delivery, in a woman of feeble habit of body. The uterus was enlarged and congested, and the hemorrhage, without being alarming, resisted all the usual hemostatics during ten days. Prof. Tarnier now advised warm baths. The first of these greatly modified the discharge, and the second suspended it completely. Recurring at the end of thirty-six hours, *it* was definitely arrested by the third. The uterus gradually diminished in size, and at the end of a week the patient was able to get up. In the second case the hemorrhage came on only on the twenty-seventh day after delivery, the uterus being as much developed as at the third month. The liquid blood discharged was not very considerable, but it became continuous, and was accompanied by coagula. Ergot in different forms, and vinegar injections, having been tried in vain, a warm bath of half an hour at once suspended the discharge; and on this recurring next day, a second bath completed the cure.

Although in possession of several cases in which their efficacy proved as complete as in these two, Dr. Bailly observes that their success is not always so prompt. He has always found them less efficacious at the commencement of the hemorrhage than when this had persisted for some time; but, as they produce no inconveniences at the earlier periods, they may also be then employed concurrently with other measures. The only objection to the method that he is aware of is, that at first it shocks the prejudices and alarms the patient. They should not be resorted to prior to the tenth day after delivery, in consequence of fatigue and danger which their application might then give rise to. Care must be taken, also, that the temperature of the water (about 34° C. or 93° Fahr.) should be rather raised than lowered, all chilling being avoided. From twenty to thirty minutes is a long enough duration to secure the general revulsion sought for; and as one bath rarely proves enough, they may be repeated daily. Prof. Tarnier was induced to try the procedure in puerperal metrorrhagia, in consequence of having observed its efficacy in the hands of M. Salgue, of Dijon, who successfully employed it in non-puerperal metrorrhagia; he adopted it for this form of hemorrhage after delivery, and has for many years recommended it.

The Pulse Rate Considered in Relation to Post-partum Hemorrhage.

Dr. ASHBURTON THOMPSON read a paper on this subject before the Harveian Society of London, in January last. The author began by referring to the well-known assertion that, if after delivery the pulse beat at or about a hundred, the patient cannot be considered safe from hemorrhage, which, on the contrary, is in that case to be apprehended. He then remarked that this assertion, which, if true, is of great value, rests upon the opinion only of a number of writers who do not offer any series of precisely recorded observations in support of it. The object of the present paper was to ascertain from a number of records of the pulse rate in various cases, beginning immediately after delivery, what is the behavior of the pulse in uncomplicated cases, and what its behavior in cases of post-partum hemorrhage. The total number of cases dealt with was sixty-three. Forty-four of these were cases uncomplicated by hemorrhage, and nine were cases of hemorrhage of different degrees of severity, which were classified by Dr. George Johnson's method, and, moreover, showed the exact amount of blood lost in each. The observations, beginning within three minutes of delivery, were taken at short intervals during thirty minutes. At every observation, the watch was used, the pulse counted during not less than thirty seconds, and the result written down at the time. In cases of hemorrhage, the observations extended over a longer period. The fifty-four uncomplicated cases resolved themselves into three classes, as follows: In the majority, or thirty-nine, the pulse fell by from 3 to 29 beats (average 13½) within a few minutes—a reduction which did not always bring it below 100. In six cases, it remained absolutely steady at the rate first observed, which was not always less than 100. In nine cases, a rise from the initial rate was noticed; and if, as sometimes happened, this rise brought the rate above 100, the pulse remained at that rate for several hours. The author concluded that the pulse may fall below, rise above, or remain steady at its initial rate; that it may fall to, rise above, or remain steady at some point above 100; that it is very commonly irregular; and that it may intermit in cases uncomplicated by hemorrhage or by any constitutional disorder. A table showing the pulse rate and other particulars in nine cases of hemorrhage was then shown; and the author said that for his present purpose he preferred to refer to them as cases of post-partum inertia of the uterus, since that is the essential condition of this kind of hemorrhage, and since he wished to exclude all cases of hemorrhage from parts other than the placental site. From this table, it appeared that degrees of hemorrhage requiring active interference may co-exist with steady pulse rates of 60 (first degree), of 70 and 76 (second degree), or with a rate varying between 96 and 108, as in one case of the third degree. It was then asked whether the causes of post-partum inertia are always such as to influence other parts of the system as well; and observed that the condition is known to occur under a variety of circumstances in which no common element can be detected. He also observed that shock to the system is sometimes accompanied by inertia; and from five other cases (of extreme exhaustion suddenly manifested after delivery; of laceration of the uterus; sudden laceration of the perineum, and concealed accidental hemorrhage) he showed that the pulse then follows a characteristic course, increasing in frequency with great regularity as the depression progresses; and decreasing again as recovery sets in. Here a coincidence might be observed between the degree of inertia and pulse rate, which is very closely maintained, but it was coincidental, merely being the result of the systemic condition to which the

inertia also is owing. This description of a characteristic behavior of pulse in cases of hemorrhage originating in systemic depression, the author believed to be original.

Hot Water Injections in Post-Partum Hemorrhage.

Dr. LOMBE ATTHILL, in the *Proceedings of the Dublin Obstetrical Society*, given in the Dublin *Journal of Medical Sciences*, January, 1878, says—

I have had recourse, with good results, in certain cases of uterine hemorrhage, not connected with pregnancy, to the use of Chapman's spinal hot water bags; and, reasoning from the benefit derived from them in these cases, I thought of trying them in post-partum hemorrhage; but, from one cause or another, I never carried out my intention. My views being thus somewhat unsettled as to the possible value of heat in post-partum hemorrhage, I hailed with satisfaction the suggestion to inject hot water into the uterus in such cases, and decided to put its value to the test of personal experience.

Having decided to try the method, the opportunity was not long wanting. On the morning of the 20th November a woman, aged thirty-three, was delivered, in the Rotunda Hospital, of her fourteenth child. Labor had been easy and natural, and pressure, as is the usual practice in this hospital, was maintained over the fundus till the placenta was expelled, which occurred in about fifteen minutes; profuse hemorrhage set in immediately after, and Dr. Smyly, assistant physician to the hospital, was sent for; he applied pressure to the fundus, cold to the vulva, and injected cold water into the uterus with good effect, but the patient becoming alarmingly weak, he sent for me.

On my arrival in the ward, she was almost pulseless, the face pale, and the surface of the body cold. There was little hemorrhage going on, but the uterus relaxed, in spite of pressure with the hand on the fundus, and a little stream of blood continuously trickled from the vulva. She was in a state of great danger, and in a condition which would have warranted the use of the perchloride of iron, but instead of having recourse to it, I resolved to inject hot water; this was procured in a moment, and passing the tube of the syringe right up to the fundus of the uterus, I injected water freely, at the temperature of 110°, keeping my hand at the same time over the fundus. I was pleased to find that the uterus contracted firmly under it, exactly as it would close had I employed the perchloride of iron. In a very short space of time, probably before I had injected more than a pint of the hot water, the fluid ran nearly clean from the vagina, the pulse improved markedly, and I ceased to inject any more. After a short time the binder was applied: no further bleeding occurred, and the patient made a rapid and good recovery.

On the 30th November another opportunity offered. A young woman, rather pallid and delicate-looking, was delivered, at 8.45 A.M., of her third child. No hemorrhage occurred at the time, and she appeared to be all right; but, at 10.30 she complained of feeling weak, and was found to be losing blood. Dr. Smyly saw her promptly, and, on removing the binder, found the uterus to be relaxed and flabby, and to reach to above the umbilicus. On using pressure an enormous quantity of clots were expelled, and blood flowed freely from the vagina. Cold was applied, and the uterus contracted firmly. I now saw her; she was very pale, and the pulse could hardly be felt; the uterus was firmly contracted, but remained very large. As the hemorrhage seemed to be checked, I did not at first think that more need be done; but, while my hand was still on the fundus, I perceived it to relax, and blood flowed again. I therefore decided on injecting hot

water before matters became worse, for it was evident that she could bear very little further loss.

On introducing my finger up to the os, with the view of guiding the tube of the syringe into it, I ascertained that the great size of the uterus was partly due to the presence of a fibrous tumor in its anterior wall. This fact did not deter me from proceeding with the injection, but rather decided me to do so. As in the previous case, the water no sooner reached the fundus than the uterus contracted firmly, and the oozing of blood ceased; but the most remarkable feature was the immediate effect on the pulse—it at once improved markedly, becoming fuller and stronger. The uterus did not relax again, and no further loss occurred. This patient recovered strength very slowly, but was able to get up in a week. On questioning her subsequently as to her feelings at the time, she stated that at the moment of the injection she experienced the greatest comfort, and obtained immediate relief from intense pain, from which she had up to that moment suffered.

The first notice which I have been able to trace, relative to the use of hot water injections in post-partum hemorrhage, occurs in the American *Journal of Obstetrics* for April, 1876, in which, in an abstract of a paper by Dr. Carl von Rokitansky, Jr., "On the Treatment Employed in Vienna for Uterine Hemorrhage," the following brief passage occurs: "Dr. Windelband has recently recommended injections of hot water in menorrhagia and post-partum hemorrhage;" and nowhere else have I been able to meet with more explicit directions on the subject.

On Ano-pelvic Version.

In the *Bulletin de l'Académie de Médecine*, October 2d, 1877, quoted in the London *Medical Record*, is an account of a new method of version to which M. Guéniot resorts in cases of difficult trunk presentation, complicated with uterine tetanus, where derotomy and evisceration of the fœtus have been recognized as useless. The process of ano-pelvic version consists in using the weight of the patient's body to introduce the hand without fatigue toward the fundus uteri; in using the pubic arch, or the sacro-coccygeal hollow, as the *point d'appui* for turning the fœtus, with the aid of the finger curved like a crotchet in the rectum; and, as regards the rest of the manœuvre, in following the ordinary rules of podalic version. The advantages M. Guéniot claims for this procedure are: 1. The pelvis is generally easier to find than the feet; 2. The hold afforded by the pubic arch or sacral hollow is firm, and not likely to slip; 3. The traction being direct, the force is economized; 4. The evolution of the fœtus can be effected whether the traction is toward the dorsal or the abdominal aspect of the fœtus; 5. When podalic version has failed, the ano-pelvic process permits version to be accomplished.

The Method of Delivery by External Pressure.

Dr. D. M. Currier, of Newport, N. H., cites, in the *American Journal of Obstetrics*, January, 1878, the following case, in illustration of this method:—

The first case in which I was struck by the benefit of external pressure in childbirth was the case of Mrs. B., aged about forty, the wife of a railroad contractor, boarding at a hotel, therefore having her whole time at her disposal. She was a pale, weakly-looking woman. She had had several children, but none living at that time; they were either still-born or died in infancy, and she was anxious to have a living, healthy child. Was called about 11 P.M.; found presentation and everything right, with good pains for the stage in which I found her. She did well till

3 P.M., when I was called into the room by the nurse, whereupon she told me the pains were not so severe, and that she was feeling very weak, which fact was corroborated by my own observation. Upon examination I found the head nearly ready to press on the perineum, but with little advance when the pains came on. I now made pressure on the abdomen with my left hand, while I took note of the progress of labor with my right. The first pain following the application of the hand to the abdomen was marked by a much greater degree of proficiency. From this time labor progressed rapidly; soon the head began to dilate the vulva, and in about forty-five minutes after the first pressure was made she was delivered of a fine, healthy boy. The recovery was perfect, only somewhat tardy, as had usually been the case with her. I feel certain that this case would have required termination by forceps, if external pressure had not been made. Since then I have always used external pressure, if the case was in any way lingering, and I never saw any ill effects resulting that I could attribute to it.

Sometimes the patients will object, on account of the severe pain it causes, but as the labor approaches its termination they are very glad to avail themselves of the assistance, frequently calling for it as a pain comes on. My usual way is to make pressure with the left hand, the woman lying in the usual left-side position, the right making all necessary manipulations until the last few pains, when sometimes I have the nurse or husband place both their hands upon the abdomen of the patient, while I use both of mine to support the perineum and deliver the head. I very seldom use forceps.

II. DISEASES OF WOMEN.

On Pseudo-cyesis, or False Pregnancy.

Some singular instances of this condition are given by Dr. J. W. UNDERHILL, of Cincinnati, in the *American Journal of Obstetrics*, January, 1878. They derive especial importance from the fact that the laws of most countries provide that women who are condemned to death shall not suffer that punishment if pregnant. These cases also occasionally puzzle and annoy practitioners in private practice.

The following instructive cases and remarks are given:—

CASE 1.—I well recollect having often seen this patient at Blackwell's Island Hospital, when, many years ago, I attended clinics in that institution. She was of American birth, single, about twenty-five years of age, and believed implicitly in her pregnancy. And, indeed, she presented to the ordinary observer the appearance of a woman advanced to the eighth month of utero-gestation. Having secretly incurred the risk of pregnancy, and presenting what to her seemed indubitable evidence of its existence, it was impossible to convince her of the contrary. Menstruation had ceased, and abdominal enlargement had been progressive. Moreover, she felt distinctly movements which she confidently believed to be those of the child. But when put profoundly under the influence of chloroform, the enlargement speedily collapsed, leaving no indication whatever of pregnancy, and showing conclusively that the inflation was, in reality, a variety of "phantom tumor." Upon recovering from the influence of the anæsthetic she would again become rapidly inflated as she returned to a state of consciousness.

CASE 2.—Several years ago I was consulted by a married lady, still residing on Betts street, in this city, in reference to her approaching confinement. Indeed, I was consulted more for the purpose of engaging my services at her accouchement than for any other object in connection with the case. She, of course, had no doubt whatever of her pregnancy, but her age—which was fifty-two—led me to suspect that she was in error. I therefore arranged for an examination at her house, not acquainting her, however, with my doubts. The lady was, at the time, happily married, and her youngest child was a girl sixteen years of age. She presented the usual appearance of a woman far advanced in pregnancy, had not menstruated during the last six months, and, indeed, had menstruated at only irregular periods during the preceding six years. The examination proved conclusively that she was not pregnant at all, and upon my imparting to her this information, she received it with blank incredulity. "Why, Doctor," she replied, "I know I am that way, for I have, during the whole of the last two months, felt plainly the motions of the child." It was of no use to argue the question. I told her that time would prove the correctness of my assertion, but she preferred to trust her own perverted sensations, and accordingly prepared clothing for the expected little stranger. She kept that clothing many months, in blissful expectation of her repetition, but it came not; and ever since then the bare mention by me to her of that extra suit of baby's attire is sufficient to ensure my expulsion from that house.

CASE 3.—Six months ago a lady, who for twelve years had been an irreproachable widow, came to my office in great trepidation. I had known her many years, and knew also that no whisper of calumny had ever been uttered against her high character. Yet she assured me that she was pregnant! The lady gave her age at fifty-one, which was certainly not above the estimate I had formed. Having been engaged in literary pursuits during the greater part of her life, it is, therefore, scarcely necessary to mention that she was unusually intelligent. Fifteen years ago her last child was born. She believed herself *enceinte*, principally because she thought she could distinctly feel the movements of the child, and because her abdomen was progressively increasing in size. She spoke vaguely of having, some months before, had a weird dream, the particulars of which she could not definitely recollect, but she had dreamed of having sexual intercourse with a man, who, in her sleep, she believed to be her husband. Upon awaking, her daughter, with whom she had slept at nights for years, was lying by her side. The window had been left open when she retired, and when she awoke it was still open, the moonlight streaming through it into the chamber, and withal there were no signs whatever of an intruder having entered. The thought occurred, upon her waking, that perhaps all this had not been a dream, and that idea had haunted her ever since; indeed, it had now almost driven her to suicide. She hesitated not to say that she would destroy herself if she was not speedily relieved of her mental anxiety, and from my knowledge of the woman I believed her. She had not menstruated for five months, and her menstrual epochs had been quite irregular since her forty-fifth year. The idea of existing pregnancy had taken such deep hold on her disordered mental faculties that no amount of ridicule could efface it. I made a very careful investigation, and, as I had before supposed, found no evidence of any body within the uterus. Indeed, it was already pretty well atrophied. Unusual tympanitis existed over the course of the large intestine, and the passage of flatus along its channel plainly gave rise to the movements which, to her disordered imagination, seemed "proof as strong as Holy Writ" of fetal motions. All this I explained to her, and knowing her

unusual intelligence, I was the more surprised that she should still remain incredulous. I prescribed remedies suitable for her condition, and after I had positively reassured her she left my office.

A fortnight later I was unexpectedly made the recipient of another call from my patient, who had not yet got rid of her delusion. Again, to satisfy her anxiety, I made a careful exploration, and, to some extent, calmed her feelings by repeated assurances that she was mistaken in her fears. Recognizing the necessity for medication, I conjoined therapeutical remedies, with assurances tending to inspire confidence in my prognosis, and, finally, I succeeded in eradicating from her mind the incubus which had almost driven her to self-destruction.

Upon reflection I am not satisfied that in this case there was any clandestine indulgence in illicit intercourse to inspire the false belief. Ordinarily, I place little or no credence in statements similar to those made to me in this instance, for "human nature is weak," and physicians early learn how very frequently prevarication is resorted to in these matters. But here my convictions favor the virtue of my patient, a lady respected for her fervent piety, as well as for intelligence and good character. And when I come to analyze more closely her mental condition, I find that she had suffered from hallucinations as well as the delusion already specified. Three years ago she had lived for a few months in a house which she was compelled to abandon on account of hobgoblins and apparitions of divers kinds, which she could both see and hear, and which annoyed her greatly during her residence in that abode. Strange to say, her two children, the eldest of whom was twenty-eight years of age, and quite intelligent, also believed they saw and heard the spectres. However, as my patient left off housekeeping, began boarding, and, therefore, was not so frequently alone, the natural was substituted for the supernatural, and I have since heard nothing more from her about apparitions.

Since I have employed the terms delusion and hallucination, and as these expressions will be used again in the discussion of this subject, it seems proper that before proceeding further I should define them clearly. Upon this point the definitions given by standard writers on insanity will certainly be accepted.

"A delusion is a false belief in some facts which, generally speaking, personally concern the patient, of the falsity of which he cannot be persuaded, either by his own knowledge and experience, by the evidence of his senses, or by the demonstrations and declarations of others. A man thinks his head is made of brass, that he has a fire in his inside, that he is a beggar or a prince, and no amount of proof convinces him of the contrary."

"Hallucinations are false perceptions of the senses—the eye, the ear, the nose, and so on."

Here, then, is the key to the phenomena of pseudo-cyesis; and, in reference to this delusion, concerning pregnancy, I state the general proposition that, when we come to inquire carefully into the mental condition, we will ordinarily find, also, other evidence of deviation from the normal standard. This is well illustrated in the third case here reported, in which not only existed the delusion concerning pregnancy, but there were "false perceptions" of the eye and ear, constituting true hallucinations, the patient believing, for a period of several months, that her house was haunted with apparitions, which she both saw and heard. In the other two cases my attention was not particularly called to this point, and it is to be regretted that I did not, in those instances, make a proper analysis of the intellectual operations.

A Fibro-Cystic Tumor of the Uterus Cured by Ergot.

Dr. H. A. DEAN, of Athol, Mass., reported a case of this character to the Boston *Medical and Surgical Journal*, January 24th, 1878:—

The following case is reported, not for any originality of treatment, but to substantiate the results obtained by others in the use of ergot, and to encourage its further trial by the profession in similar cases.

Mrs. G. K., age forty-two, first had uterine trouble in June, 1868. A long ride and tramp for berries were followed by a severe uterine hemorrhage, and menorrhagia was the rule at each catamenial period for several months following. She first noticed a tumor of the size of a teacup in May, 1869, but received no treatment till the next September. She has been for most of the time since under treatment, principally by irregular practitioners. All this time the tumor had gradually increased in size, until it gave her the appearance of a woman at the full term of pregnancy.

I was first called to the case January 23d, 1877; found her suffering from poor circulation, difficult breathing, numbness of extremities, feeble pulse, and general œdema, and ordered hydrarg. chlorid. mit., fifteen grains, to be followed by a saline cathartic in the morning. This treatment gave general relief. The patient at first objected to any direct treatment for the tumor, saying it always made her worse, but she finally consented, about the middle of March, to take the ergot in one-half drachm doses three times daily.

The 27th of March, my friend Dr. H. T. Hawks, of New York city, saw the case. He made a thorough examination, exploring by aspirating needle and by uterine sound. He diagnosticated a very large fibro-cystic tumor. The cavity of the uterus measured seven inches in length, bearing far to the left. The aspirator produced but little fluid. His prognosis was unfavorable, but he advised an increased dose of the ergot, giving drachm doses once in four hours.

The 3d of April she commenced flowing profusely, was in great pain, delirious, with quick pulse and high fever. I found general inflammation of uterus and bowels. The ergot nauseated her, so it was ordered by enema. Squibb's tr. opii deod. and hot fomentations over the bowels were prescribed. The menorrhagia, delirium, and fever lasted for two weeks, with no abatement. The patient became emaciated and extremely weak, and the end seemed but a few days off. The third week of fever found her mind becoming clearer, fever abating from 103° to 100°, pulse falling from 130 to 110, and the uterine discharge free from blood, but more excessive than before, and occasionally small pieces of fibrous tissue came away with it. These increased in size and frequency, some days several pieces the size of a hen's egg passing off, until the whole mass had disappeared. A thin, offensive discharge kept up for a few weeks, but soon ceased altogether, and in October the menses, absent since April, returned. The patient is in full flesh, natural figure, and, as she expresses it, "never felt better in her life." The only treatment not mentioned above was the administration of infusion of digitalis, with general supporting tonic remedies, iron, quinine, porter, etc.

Treatment of Uterine Fibroids by the Faradic Current.

In the *American Journal of Obstetrics*, January, 1878. Dr. J. T. EVERETT, of Illinois, cites a number of cases of uterine fibroids, removed or benefited by electricity. He remarks:—

Judging from analogy, we are led to the conclusion that the faradic current will

also be a valuable agent in causing the reduction and extension of these morbid growths.

Having used it many times with entire success in cases of inertia uteri, placenta previa, and post-partum hemorrhage, and having been annoyed by the unsatisfactory and dangerous effects of ergot, I was led to try the faradic current in a case of uterine fibroid, and the result was very gratifying.

The principal objections to the use of ergot in these cases are: the difficulty of obtaining a reliable preparation; its tendency to disturb nutrition and the secretions; the alarming cerebral symptoms which frequently follow its continued administration; its tendency to produce local inflammations of the stomach, bowels, or uterus; the intense pain always, and the abscesses usually, produced by its hypodermic administration. These, with other minor reasons, induced me to place my chief reliance upon the faradic current as the most desirable agent in the treatment of a number of cases in my practice. After citing nine, he concludes:—

1st. The faradic current, if judiciously used, is equally potent to produce uterine contractions as the preparations of ergot.

2d. It is more easily controlled, can be begun or discontinued at a moment's notice, and the dose can thus be more judiciously apportioned.

3d. It never disturbs nutrition or the secretions, and does not interfere with digestion.

4th. It never produces pain in distant organs, is followed by no cephalic disturbance or nervous shock.

5th. It never produces inflammations or other local injury.

The Medical Treatment of Uterine Fibroids

In the Edinburgh *Medical Journal*, January, 1878, Prof. A. R. SIMPSON says, on this subject—

I may at once frankly say, that I know of no drug which, on being introduced into the system, finds its way to a uterine fibroid, and acts in the way of a solvent on its structures.

1st. *Mineral Waters.*—At the same time, I cannot doubt the powerful influence for good exerted by some of the mineral waters, *e.g.*, those of Kreuznach, the virtues of which were advocated here by Dr. Engelman last session. For I have seen patients who were suffering from such tumors in whom the symptoms were relieved, and in whom the growth of a previously increasing tumor was arrested, if the bulk was not immediately diminished. These mineral waters seem to me to exert some portion of their influence by acting as sedatives to the sexual organs, lessening the activity of the circulation in them, and so reducing the nutritional activity. One can understand how in this way the effects of the chronic inflammation going on in the organs may be removed and a check be given to the further increase of the neoplasm; how, even when the muscular walls of the uterus are disburdened of their inflammatory products they may quietly but continuously begin to take on their function, and contract so firmly around the growth as to favor its disintegration.

2d. *Bromide of Potassium and Chloride of Calcium.*—A similar influence, it is at least highly probable, may be exerted by the bromide of potassium. This drug, which enters largely into the composition of some of these waters, has certainly a powerful sedative influence upon the generative organs; and though, as I have said, neither it nor any other can be regarded as a simple solvent of uterine myomata, I have a strong impression of its value in modifying the conditions that favor their

development. But I have long ceased to trust to it alone in their medicinal treatment. In some instances I have administered the chloride of calcium as recommended by Washington Atlee and Spencer Wells, but I have failed to meet a case where the progress of the tumor was sensibly affected by its use; and it is to be remembered that its prolonged administration is not a matter of indifference, as Wells has noticed the premature development of an arcus senilis in patients who were employing it. One of its expected advantages, indeed, is the deposition of calcareous salts among the tissues of the tumor or in the walls of its nutrient artery; but there is no means of controlling their deposition in the desired site, whereas, in the case of the bromide of potassium, we have to do with a salt which, however it may act, does not lodge in the system, but is being constantly eliminated, so that I have had patients taking it for many months, and even for a year or two, without its producing any constitutional effect, if only they were careful to attend to the recommendation to suspend its use during the menstrual week.

3d. *Ergot of Rye.*—But the drug that most powerfully and unmistakably affects the growth of fibroid tumors of the uterus is the ergot of rye. Its influence on the developed muscular fibres of the uterus naturally led to its employment in cases of fibroid tumors with hypertrophy of the surrounding walls; and the concurrent testimony of many gynecologists puts the action of ergot in the treatment of these growths among the best established phenomena of therapeutics. The preparation, for example, to which I have already referred as having been sent here for exhibition by Dr. Watson, was taken from the body of an unmarried female, aged 52, whose case was brought under the notice of the London Obstetrical Society in 1871, by Dr. John Brunton. She had been the subject of a fibroid tumor which reached up as high as the umbilicus, but which disappeared in the course of six or seven months under the administration of full doses of ergot at each menstrual period. When the patient died last summer, of disease altogether unconnected with the sexual system, and after she had ceased to suffer from any further hemorrhages, there was found in the upper part of the uterus and growing from the fundus and anterior wall, as some of you saw, a condensed and partially calcified fibroid, of the size of a small mandarin orange. For many years I have been in the habit of treating certain cases of uterine fibroids with ergot of rye during the menstrual period, and bromide of potassium in the intervals, and in many instances with good results. Rather more than a year ago there came to my ward in the Infirmary here a woman whom I had had under my care ten years ago, in Glasgow, suffering from a fibroid which caused the uterus to rise, like a fourth-month organ, above the pubis. Under the treatment I have indicated, the tumor began distinctly to diminish in size, and as the patient became freed from her distress, I lost sight of her till she came back bringing with her her old prescriptions. She stated that she had kept well for three or four years, when she began again to suffer from her old symptoms and the re-appearance of a tumor in the lower part of the abdomen. She had gone to live in a distant part of the Highlands, and allowed it to progress till now it filled the abdomen and reached a handbreath above the umbilicus. On this occasion I kept her under treatment for nearly three months, administering every second day a hypodermic injection of 2½ grains of ergotin, with the result that a slight but very appreciable diminution occurred in the mass. She was obliged to go home sooner than I desired, but she left under promise to return if the tumor began to grow larger, or she began to suffer from any aggravation of her symptoms.

The narration of this case has led me into the statement of the method that I

have found to be the most effectual for obtaining the full benefit of the drug. For it seems to me that the doubts as to its efficacy are traceable to one or other of three different causes: 1st. The use of an inert preparation of ergot; 2d. An imperfect administration of it; 3d. An inappropriate condition of the patient. As to the first, it is one of the commonplaces of obstetrical therapeutics that quantities of inert preparations of ergot are in all the markets, and that much of the uncertainty as to the value of the drug is due to the employment of powders, extracts, and tinctures which are devoid of all active properties.

Secondly, with regard to the mode of administration: while almost any preparation of a good ergot will give the desired effect, it was a step of immense importance in the satisfactory treatment of uterine fibroids when Professor Hildebrandt, of Königsberg, demonstrated the safety and certainty with which an active dose of ergotin could be administered hypodermically. He showed what my own experience, as well as that of Byford, of Chicago, and others has amply confirmed, that the repeated subcutaneous injection of from 2 to 5 grains of ergotin can be counted on with great certainty to excite appreciable contractions in the walls of uterj in which the muscular fibres have become hypertrophied. The preparation of ergotin which I have found most satisfactory is the same which I brought under the notice of this Society in treating of the complete evacuation of the uterus after abortions.

℞.	Ergotinæ,	ʒij.	
	Aquæ,	ʒvj.	
	Chloral hydratis,	ʒss.	M.

Twelve drops of the solution, or rather, mixture—because the ergotin is partly dissolved and partly suspended—gives a dose of three grains, and this may be regarded as a medium dose, to be administered daily, or every second day, or twice a week, after the influence of the drug begins to be manifested.

In making this hypodermic injection, it is necessary to take care, 1st, that the fluid carry with it no small globules of air; and, 2d, that the point of the syringe be carried deeply down through the skin and areolar tissue, right into the muscular strata. Sometimes the injection may be made in the abdominal walls; in most cases they are borne best in the gluteal regions. I cannot understand how the practice has crept into our hospitals, but I observe that when students are called to make such an injection, they pinch up the skin and push the point of the needle obliquely through, and, occasionally, to some distance among the cellular tissue beneath the skin. Now, the pinching up of the skin may do good and serve to make the surface somewhat tense; but the needle should certainly always be carried in as perpendicularly to the surface as possible, and straight down, with one quick stroke, into the muscular tissues. Such a preparation, so introduced, is not liable to be attended with the suppurations which have deterred some practitioners from the continuance of this mode of administration. It is but rarely even that the patients complain of the pain. I can only recall two out of the many patients in whom I have used it, who objected to the frequent repetition of the injection on the score of the local suffering. They may be made daily, or every second day, for several weeks; or, after some frequent injections for a month, they may be continued once or twice a week for many months, without producing any constitutional disturbance.

Cardiac disease does not constitute a contraindication to its employment. At least one patient, to whose case I have already referred as having got rid of some fibroid mass during a puerperium, was commended to my care chiefly because of the distress she suffered from a cardiac affection. I found, indeed, that she had well-

marked valvular disease of the heart; but it seemed to me that her distress was largely due to the presence of a group of fibroid tumors, some of which were subperitoneal, but one at least was intramural or submucous, and associated with pretty free menstrual discharge. The subcutaneous injections were freely carried out in this case without the faintest drawback, and with the result of a lessening of the menorrhagia and a diminution in the bulk of the lower portion of the general mass, along with great improvement in the patient's general health. Again, I have used the ergotin hypodermically in the case of a patient who is the subject of chronic asthma and bronchitis, with nothing but satisfactory results.

But there remains the third point as to the appropriate cases. I believe Hildebrandt has correctly indicated the condition most favorable for the use of ergotin in stating that the tumor must be intramural or submucous; in other words, it must be surrounded by layers of muscular fibre, sufficiently developed to be capable of being excited to contraction, and sufficiently powerful to exert some degree of pressure upon the body in their embrace. For the beneficial action of the drug in such cases depends upon its property of stirring and keeping up continuous contraction in the unstriped muscular fibres of the uterus, the effect of which is, in some cases, to push the compressed tumor more rapidly toward the uterine orifice, and so to favor its extrusion from the cavity; in others, so to interfere with its nutrition that it ceases to grow, or even begins to wither, probably in consequence of fatty degeneration being set up in its fibres. The ergotin, perhaps, exerts a secondary influence in the direction of cutting off the nutritive supply of these bodies by tending to cause contraction in the walls of the uterine arteries, and so lessening their calibre. Such an influence is not to be denied, and although it is altogether subsidiary toward the elimination of these fibroid tumors, it makes the employment of the drug very serviceable for the alleviation of one of their commonest symptoms, viz., the excessive losses of blood.

Sometimes, I have said, the hypodermic injection leads to the rapid extrusion of the tumor. This occurred in the case of a poor woman whom I saw with Dr. Balfour, of Portobello, and who came into my ward to be treated. She had long suffered from pelvic pains and uterine hemorrhages, and had got into the habit of taking opium freely and frequently. The fundus uteri reached more than half way between the pubes and umbilicus, and the sound passed four inches into the uterine cavity. There was a degree of tympanitis and abdominal tenderness that necessitated the administration of chloroform to enable us to make a satisfactory examination. Under the use of the hypodermic injections of ergotin the discharge at first diminished, then a fetid discharge began to escape. Frequent examinations, even with the finger, pained the patient, who was a virgin, aged 48; but after two months' almost daily use of the injections a sloughy mass was found to have been expelled into the vaginal canal, which was detached from the uterus by means of the écraseur. It was so soft and pulpy that I thought at first the diagnosis as to the nature of the tumor must have been incorrect; but, on more careful examination, it was found to be a fibro-myoma in a gangrenous condition, many of its fibres breaking down, and some of them crowded with fatty particles. The patient recovered health to a great degree, notwithstanding that she had an attack of pleurisy before she left the Infirmary, and the tympanitic state of the abdomen never disappeared.

In other cases, where the tumor has not been expelled; it has become reduced in size. Two years ago I saw, with Dr. Cullen, of Airdrie, an unmarried lady, 35 years of age, who had become very anæmic, from excessive losses of blood. She had

an intramural fibroid, of the size of a child's head. The hypodermic injections were carried out at somewhat lengthened intervals, but kept up for many months by a sister, as they lived at some distance from their doctor; and when the patient came to see me last spring her discharges were less profuse, her tumor much reduced in size, and her general health greatly improved. I might make almost the same remarks regarding a very similar case which I saw some nine months ago with Dr. Peter Stewart, of Glasgow; only the tumor in this case was originally larger and more irregular, and wedged more firmly into the pelvis, and the diminution in size is not yet so pronounced. In a note which I had the other day from Dr. Stewart, he tells me he is using the ergotin in another case of fibroids with promising results.

In certain cases, the beneficial action begins to make itself sensible to the patient, by relief of her symptoms, before there is any distinctly appreciable reduction in size of the mass. Moderation of the often exhausting hemorrhages is a frequent observation. But sometimes other symptoms thus soon get relief. A lady, for example, who was sent to me by Dr. Leith, of Comrie, in addition to the weakness caused by menorrhagia, was suffering from symptoms of pressure on the bladder. The uterus, occupied by a fibroid tumor, was about the size of a large fist, movable, and with a patulous cervix. I administered an ergotin injection, and advised its repetition two or three times a week. In six weeks the patient returned, having experienced great relief from her pressure symptoms, and gathering strength, as she had had less loss of blood. Still, I could not satisfy myself that the uterus felt much lessened in bulk. After the continued use of the injections, made chiefly by the patient's husband, for two months longer, the diminution in the size of the uterus was very perceptible, and the patient's general health was still improving.

In two instances of unmarried ladies, where the tumors were subperitoneal, but where there was considerable enlargement of the uterus, and a degree of menorrhagia that would itself have constituted an indication for the use of ergot, I have observed that under the ergotin injections the tumors, without sensibly decreasing in size, became, in the course, in one, of three, in the other, of five months, more superficial.

Lastly, I have noticed that, in several instances, where the tumor was of large size, and where the ergotin injection treatment has been instituted, a growth, which up till that time had been steadily increasing in size, has had such an arrest laid upon it that it ceased to enlarge. Two ladies, both unmarried, whose history is illustrative of this occurrence, are at this moment in my mind. In one, I had the opportunity of witnessing and watching the slow but steady growth of a fibroid during several years, despite the use of the Kreuznach waters, bromide of potassium, chloride of calcium, and internal administration of ergot. Since, about eighteen or twenty months ago, however, she had a series of ergotin injections carried out for some two months, there has been no increase in her girth, though her general health is better, and her limbs are stouter. In that case, the period of life may have favorably influenced the condition, as she ceased to menstruate a few months after she had begun this treatment. But, in the other case, the patient is still only 35, and though menstruation goes on regularly the flow is less, and there has been no increase in her abdominal measurements since, more than a year ago, she first began to use ergotin injections.

Absorption of Therapeutical Substances by the Vagina.

Dr. E. W. Hamberger has published in *La Province Medicale*, December, 1877, a number of experiments with the view of determining the absorbing power of the

vaginal mucous membrane. A tampon impregnated with a solution of the medicinal substance was introduced into the vagina by means of a Fergusson's speculum, and retained for twenty-four hours by a dry tampon, to prevent the backward flow to the vulva. The urine passed from time to time was examined for the drug thus administered. Iodide of potassium was found two hours after the introduction of the tampon, and traces of it remained twenty-four hours after removal. Ferrocyanide of potassium and salicylic acid appeared three hours after they were thus given, and bromide of potassium took the same time to appear. Hamberger believes that the administration of drugs by the vagina can be employed in all cases of obstruction of the normal ways, and in gynecological practice he considers it will be specially useful.

The Treatment of Mechanical Diseases of the Uterus.

In an able paper on this class of diseases, in the *Lancet*, December, 1877, Dr. GRAILY HEWITT says—

If it be the fact that the mechanical diseases of the uterus are the most important of its diseases, and if it further be the fact that these mechanical diseases almost never occur unless in cases where the general nutrition of the body is at a low ebb, and the uterus has become greatly weakened and its physical resistance impaired; if, I say, these two ideas are correct, it follows that the greatest care is necessary on the part of those having the responsibility of the training of young women, to nourish and sustain the strength of the body at large, in order to secure immunity from uterine suffering.

It will further follow that care should be shown in the regulation of exercises and exertions of various kinds, and that they be kept within the limits of moderation. It will also not be lost sight of that when complaints are made of pains and inconveniences following exertion, they are not to be treated as necessarily fanciful and imaginary. Regard will necessarily also be paid to the possible weakening effects of exhausting diseases, as fevers, upon the uterus. The insidious effects of prolonged uterine nausea, in producing a kind of semi-starvation, must be duly recognized.

As regards the cure of these mechanical diseases, the principles of treatment may be succinctly stated.

In the first place it must be recollected that all cases are not alike; some require little treatment, others are cured with great difficulty.

Duration is an element of importance. When the disorder is recognized early, its cure is comparatively easy. When, however, the uterus has been decidedly distorted for some years, complete cure may not be possible.

The consistence of the uterus is a matter much affecting treatment. If the uterus be still softer than normal it is a hopeful feature in the case, though it may take some months' general treatment to restore its tonicity and firmness, but the cure of the flexion is more easy; whereas, when the uterus is very firm, the distortion is so frequently accompanied by considerable atrophy at the seat of the bend, that perfect restoration is difficult.

These general considerations apply in all cases, and a want of attention to them will involve disappointment in many instances.

The actual treatment required is, of course, to restore the uterus to its proper shape and position, while the restoration of health of the body at large is at the same time the object of careful attention.

There are various ways of restoring the uterus to its proper shape. 1. By placing

the patient in such a position that the force of gravity aids in restoring the organ. 2. By the use of certain internal mechanical appliances.

1. *Positional Treatment.*—This is of the utmost consequence in all cases, difficult or not difficult. In slight cases it is alone sufficient. This is most important. Bearing in mind the circumstance that the subjects of these cases are not unfrequently young unmarried women in whom local explorations and the application of internal local treatment are, if possible, to be avoided, it is very satisfactory to know that a rational treatment of slight uterine displacement and commencing uterine distortion can be carried on without recourse to these procedures in certainly the large majority of such cases. It is, of course, different when the malady is of long duration, and the uturus has been, perhaps for some years, in a very diseased state.

One or two instances may be given in illustration of these remarks. A young lady, much addicted to dancing, had not menstruated for nearly a year. No examination was made, but a diagnosis of probable commencing anteflexion was arrived at. The patient was ordered to maintain the horizontal dorsal position, absolutely, for two months. At the end of one month menstruation reappeared, and the case subsequently ended quite satisfactorily. Some years ago I was consulted in the case of a young lady who had been allowed to over-exert herself in many ways, who had been very much under-fed, and in whom menstruation had ceased for a long period. The horizontal position, and great care in the matter of dietary, produced a complete restoration to health. Since that time other members of the family have exhibited like tendencies, and the same symptoms have been combated with the same simple remedies with perfect success, though, from what I know of the history of similar cases, it was evident to me that there was decided mechanical disturbance of the uterus present, such as would, if neglected, have led to more serious results in process of time. No examination was made in either of the cases.

The horizontal position is the great desideratum. The difficulty is to know whether the dorsal or the prone position is the proper one. The lateral position may often be accepted as a compromise when this is uncertain. The symptoms generally indicate the proper course, and forward displacements being much more common, the dorsal or lateral position is generally necessary.

In some long-standing cases also, position is of great importance. Even in association with internal local treatment it is, in most cases, absolutely necessary. Pessaries are not alone capable of curing these chronic cases, and I have seen great disappointment result from want of appreciation of the necessity for rest and horizontal position as part of the treatment. The prone position in retroflexion cases, the dorsal position in anteflexion, must often be enforced for weeks, or even for months together, when the uterus is much distorted, if real benefit is to result. The prone position is tedious and painful, unless the patient be placed on a slight incline of pillows, when it is readily borne. The knee-elbow position is useful as an occasional measure, particularly in backward deviations. Dr. Campbell, of the United States, has recently forcibly directed attention to its value. And on the effect of position generally I would refer to an important paper by Dr. Aveling.

By these positional remedies the force of gravity is brought to bear on the fundus uteri, and a reversal of the vicious direction of the fundus is assisted.

Mechanical Internal Treatment.—Various mechanical apparatus may be employed. When the uterus is still moderately soft, vaginal pessaries applying pressure in the upward direction against the fundus are of great service, especially assisted by the

horizontal position. For posterior flexions, modifications of the Hodge pessary, for anterior flexions, modifications of the "Cradle" pessary are, I believe, the best. These instruments are capable of doing much while the uterus is moderately soft. But when the organ has become hard and the flexion is chronic they are insufficient. The uterus must be unbent and straightened by the sound, or by the use of tents. Repeated gentle bendings of the uterus the opposite way is an efficacious method of treatment. The combined use of the sound and a vaginal pessary will effect much in process of time, even in very severe cases. The uterus is a very plastic organ, as is proved by what has been frequently observed in the complete cure of cases of inverted uterus of many years' duration.

On the subject of pessaries space will not permit me to say much. A well-fitted pessary is a great aid in treatment; but there is no middle course. It must be well fitted and really adapted to the peculiarities of the case, or it will be worse than useless. Much has been said as to the multitude of pessaries, but when this remark is made it may be answered that the variation in cases is great, and it is a great mistake to suppose that one pessary will suit all cases.

Uterine stems are of great service in certain cases, and many improvements have of late been made in their adaptability by Dr. Meadows, Dr. Bantock, Dr. Chambers and others.

Various operations for the cure of distortion are occasionally properly practiced. The incision of the internal os uteri for the relief of dysmenorrhœa does not, except in a few exceptional instances, appear to be a satisfactory procedure, though it has been much practiced. The real difficulty in most of such cases is the flexion. But as an aid to the cure of certain severe distortions this mode of treatment may occasionally be called for.

The treatment of the congestion accompanying flexion of the uterus demands a few words. Leeches have been much recommended, scarifications of the os have also been employed. But I rarely find these measures necessary. The congestion is at once relieved by straightening the uterus, which may be done by position, by the use of the sound, or by a pessary, according to the degree of severity of the case.

The general treatment of the patient in cases of uterine disease is of the utmost consequence. One of the principal merits of the system of uterine pathology now enunciated is, in my opinion, the explanation offered of the process by which health passes into disease, and why it is that the sound uterus becomes predisposed to injury from accident, or more slowly by the debilitating influences of semi-starvation, and circumstances lowering the general health. A generous diet is almost always necessary. Food often cannot be taken unless the patient is instructed how to take it. Frequent (every two or three hours) small meals of easily digested food, such as soup, essence of beef, eggs, etc., should be given; animal food in some form is the food particularly required. Various tonics are of service—iron, quinine, nitro-muriatic acid, etc. In certain cases moderate quantities of wine are certainly necessary. Fresh air is essential, but long walks are quite inadmissible; also long carriage rides, unless in a semi-horizontal position. Baths, frictions of the skin, hip-baths containing sea salt or Kreuznach salt, etc., have their own place as aids in the treatment. The greatest patience is required to restore the general health in old cases.

Remarks on the Operation for Ovariotomy.

In the *British Medical Journal*, January 5th, 1878, Dr. J. THORBURN, Professor of Obstetric Medicine in Owen College, has some observations on this operation. He

begins by saying that it is at present too hastily and rashly undertaken, and counsels delay and prudence. He proceeds—

Another point to which I may allude, in connection with the operation, is the size of incision advisable. The question of a long or a short incision has been much discussed formerly, and statistics have been drawn up as to their relative value. Such statistics have, in my opinion, no importance whatsoever. The larger incisions were made, as a rule, for larger or more adherent tumors, or for cases more difficult in other ways; hence, the short incisions were pretty sure to have the best of it. I cannot see myself what difference an inch or two more can make in the danger of an incision of the kind, and I have seen, both in my own practice and in that of others, great danger from adhesions which might have been much better treated with a larger wound, and from dragging at, instead of enlarging, the opening. Even in the case of unilocular cysts, there are often adhesions which require a good opening to treat them safely. I would advise you, then, in almost every case, to make an incision of fully four to five inches, and not to hesitate to enlarge it at once as freely as seems necessary to command a good view of what you are doing.

The treatment of the pedicle is a subject which has from the first been much discussed. You will find in Mr. Wells' work a most temperate and thorough discussion of the various methods that have been used, including its retention outside the peritoneum by the clamp, and its treatment within the peritoneum by ligatures, *écraseur*, acupressure, cautery, etc.; and his vast experience has led him to adopt the clamp for the great majority of his cases. I am bound to say, however, that the use of a strong, well-tied silk ligature, cut short and allowed to fall into the abdominal cavity, has so far commended itself to me. The late Dr. Tyler Smith had a very fine series of cases treated in this way; it was this that induced me to try the plan, and it is so superior in handiness, and in every way, to my mind, so much more simple, that I fancy I am likely to continue its use until I have met with a case where I find inconvenience from the after-presence of the ligature, or until I have been unfortunate enough to meet with one where a ligature of my own tying has proved insufficient to prevent hemorrhage. I have unfortunately seen a very promising case lost, in this institution, from the slipping of the pedicle out of the clamp, which certainly looked as if nothing could have escaped from it. Bear in mind, however, that very powerful and pure silk, *i. e.*, animal tissue, well carbolized, should be used. This must perforate the stump of the pedicle, so that it cannot slip off at the end, and must then be tied in two separate portions. If the pedicle be very thick or broad, three or four portions must be tied separately. If these precautions be observed, sufficient force may be used in tying to render any danger from shrinking an impossibility. A touch with the galvano cautery might add to the apparent safety where the operator is timid; the ordinary cautery is apt to leave behind it some *débris*, which is, at any rate, unnecessary.

The influence of a hospital atmosphere for evil, upon cases of ovariotomy, has been so clearly proved that it can hardly admit of any doubt; and possibly the Infirmary Board, when it has overcome some of its more pressing difficulties, may be induced to provide us with a separate building or thoroughly detached ward, for such cases alone. It is not, therefore, with the view of disputing the dangers incurred from hospitalism that I point out how, nevertheless, with reasonable care, much may be done to obviate these dangers.

Antiseptic treatment, in its relation to ovariotomy, is a subject full of immediate interest. The intimate connection between all forms of septicæmia and certain germs,

and the destructive effect of carbolic acid and other agents upon the latter, so ably advocated by Mr. Lister, seems to have passed into the region of absolute fact. Though not yet convinced that there may not be some *tertium quid*—chemical, electric, or otherwise—which may stand in the relation of cause, or, at any rate, of promoter, both of sepsis and of germ-growth, the practice dependent on the theory that the one is the cause of the other seems so consonant with all present available hypotheses, and so approved by clinical facts, that I consider it utterly unjustifiable to deny our patients its fullest advantages. I will not enter into the question as to whether, in ordinary surgery, the processes of dressing advocated by some are not so complicated and unnecessarily troublesome as to deter many from the use of antiseptics, but, in ovariotomy, I am sure that simpler and more effective, *i. e.*, more antiseptic, methods will suffice. The plan I have adopted in twenty-five successive cases of ovariotomy has been this: after tying the pedicle, I thoroughly smear it with carbolic glycerin and drop it into the cavity of the abdomen. This imparts a strong carbolic atmosphere to the peritoneal cavity, thereby increasing the effect of carbolized sponges, ligatures, etc. The well-known effect of glycerin upon the uterus, which you have seen in our ward practice, is, no doubt, exerted also on the pedicle and adjacent parts; a good deal of their redundant moisture is absorbed, and the natural process of shrinking is hastened. I have also used the carbolic spray apparatus. After passing a sufficient number of silver sutures across the abdominal wound, I next smear every interstice of it with the same carbolic glycerin, not forgetting its free application to the peritoneal edges. I then tighten and twist the sutures, and apply a piece of lint dipped in carbolic glycerin. Some long adhesive straps, a clean napkin, and a binder complete the process. How or when the wound heals I cannot exactly tell you, for I do not look at it for ten or twelve days.

Studies of Disorders of Menstruation.

In a lecture by Dr. GRAILY HEWITT, in the *Lancet*, December 22d, 1877, he speaks of the functional disorders of the uterus, as follows:—

1. *Dysmenorrhœa.*—One of the important functions of the uterus is menstruation. How far, and in what way, is alteration of the shape of the uterus likely to disturb this function? Regard simply the physical conditions essential to the due performance of the function. A certain quantity of fluid, containing minute shreds of broken-down membrane, has to be discharged, at each catamenial period, from the cavity of the body of the uterus. It has to pass through an aperture—the internal os uteri—which, in the natural state, is about one-eighth of an inch in diameter. This aperture is the central and smallest part of the uterine canal. The canal, at this situation, is surrounded by the firm, resisting fibro-muscular tissues of the uterus, the uterine walls being at that situation, as already remarked, rather thinner than elsewhere. In the ordinary course of things, the menstrual products pass through this narrow aperture slowly, but continuously, the size of the passage being sufficient to drain the uterine cavity, and discharge the fluid as fast as it is poured out from the lining of the body of the uterus.

The patency of a tube is greatest when it is completely circular in shape. Flatten the tube and you at once diminish its calibre. Carry the flattening process far enough and you extinguish the tube altogether. These are truisms, and I almost apologize to you for stating them. The question is—Have they, or have they not, an application to the uterine tube, and what is the effect of change of shape of the

uterus in impairing the patency of this tube. It so happens that the internal os uteri —the narrowest part of the tube—is coincident with the middle of the uterus, the situation at which, in cases of flexion-distortion, the bend is most usually found to occur. The physical relations of the parts are such that a certain flattening of the canal is inevitable when the uterus is bent at this situation. The flattening occurs from before backward. It varies in degree, according to the degree of the flexion and other circumstances, and it is demonstrable, from anatomical considerations alone, that flattening and consequent impairment of the patency of the canal must inevitably occur when the uterus is decidedly flexed, and thus distorted. This is so obviously true that it seems almost unnecessary to insist upon it.

But we may go a step further. It is probable that during menstruation the internal os uteri is capable of becoming, to a certain extent, dilated so as to more readily allow of the escape of menstrual products. It is believed by some that the internal os uteri has a regular sphincteric action, expanding and contracting according to circumstances. It seems probable that in a state of perfect health no such expansion is required to allow of escape of menstrual products; but it is quite certain that such expansion is required if the menstrual debris be unnaturally solid or bulky; and it is quite possible that the internal os does undergo expansion to a certain extent, even in less abnormal cases. But I would direct attention to the fact that, if the uterus be decidedly bent, such expansion of the internal os must be very materially interfered with. The tissues around the internal os are necessarily *com*pressed and rendered harder and more resisting by the mere fact of the existence of the bend. The flexion occasions not merely a flattening of the canal, but a condensation of the uterine tissues in the neighborhood, such as would directly and forcibly resist any expansion and dilatation of the tube. Other important changes are observed at this situation, in consequence of the presence of flexion, but they will be considered later on. The patency of the uterine tube, under ordinary circumstances, is, in short, dependent on the uterus preserving its proper form, and thus allowing the canal to remain circular in shape.

The connection between obstructed and painful menstruation and constriction or narrowing of the internal os uteri is one which has been forcing itself on professional attention for some time. But the subject has been imperfectly understood. Stricture of the internal os uteri has been very frequently assumed to be present when the canal was simply very much bent at that point. The condensation and hardening not unfrequently present around the narrow portion is undoubtedly often great in long-standing cases, and a veritable stricture not seldom exists. But at first it is not so, the canal admitting of easy passage of the sound if the point be only directed properly and in conformity to the bend of the uterus which is present. All cases of dysmenorrhœa are not due to flexion, but the vast majority of them come under this category. There are a few in which the canal is congenitally narrow, or in which obstruction exists at other situations, or in which the obstruction is due to some other condition—a small fibroid tumor growing so as to compress the canal, for instance; but these cases are rare.

Now the truth of the foregoing statements regarding dysmenorrhœa rests on evidence which seems to be quite unassailable. Clinical facts are most thoroughly in accordance with this view. Let individual cases be tested; let the uterus be carefully examined, and it will be found that marked dysmenorrhœa will, unless in a very few and exceptional cases, be found associated with undoubted flexion of the uterus. The proof of the connection between the two things, the flexion and the

obstruction, is of the most convincing kind. Relieve or remove the flexion, and the pain and difficulty disappear. It is true that this may not be enough to completely cure the patient when the canal has been distorted some time, and further changes have occurred; but this effect, in the majority of cases, is very striking. Why do we find that many cases of dysmenorrhœa are relieved by simple observance of the recumbent position during this period? Simply because the existing flexion is thereby somewhat diminished, the canal is a little straightened, and the escape of the uterine contents is thus rendered more easy. The pain which accompanies difficult menstruation is due to the existence of an impediment to the escape of the fluid. This doctrine is not in accordance with the older teaching on the subject. It is a mechanical view of the matter, and it is unquestionably the true one. Having given this explanation of the matter in the first edition of my work on "Diseases of Women," published in 1863, it is satisfactory to find that this view has been steadily gaining adoption of late years. The pain appears to be partly due to the distention of the uterine cavity, causing compression and tension, and congestion of the body of the uterus, but chiefly to actual muscular contraction of the uterus; in fact, to a "pain" similar to those witnessed in parturition, though on a smaller scale. The body of the uterus contracts, and in the end generally succeeds in expelling its contents. In so doing, the internal os uteri must become dilated, in order to allow of the passage of the fluid or debris of membranes or clots. In cases of flexion, when the malady is not of very long duration, the contraction of the uterus seems to have a straightening effect on the uterus, and when this occurs the canal is thereby opened to a certain extent, and the uterine contents escape. But in severe or long-standing cases the circumstances are such that the uterus has no power of straightening itself, and then we find that the process of emptying the uterus is a very slow one; the pains recur from time to time, with little relief, and the catamenial period is both protracted and painful.

In cases of the latter description, a frequent phenomenon is the abrupt cessation of the flow for a certain time, a few hours or longer, after which the pain and discharge again recur. A further phenomenon, traceable to the same cause, is a certain dilatoriness in the appearance of the discharge. The fluid observed at first is very slight in amount, or there may be none at all for the first day or two, during which time, however, pains are more or less frequent; also a protraction of the period, together with alteration in the character of the discharge from red to brown, and later on to a still lighter discharge, evidencing that the retained contents of the uterus are now mixed with a fluid of a non-sanguinolent character.

2. *Sanious or Purulent Leucorrhœa from Menstrual Retention.*—Finally the period quite ends. But in a certain number of cases other effects of the retention present themselves during the inter-catamenial intervals. Here we come upon a class of facts of the greatest interest and importance, from a clinical point of view; facts which deserve minute and particular attention.

There are a certain number of cases, occurring not very rarely, in which, during the inter-catamenial intervals, there are observed from time to time, perhaps once in two or three days, and, generally, particularly during the week or ten days immediately following catamenial cessation, discharges of a puriform character, coming on suddenly, lasting for a brief period only, and then ceasing. A puriform leucorrhœa occurring in gushes is an accurate description of what is observed. This occurrence is due to the existence of chronic flexion of the uterus. It arises from imperfect emptying of the uterus. At the close of the period something is still left. This

unevacuated fluid undergoes changes resulting in its conversion into the puriform fluid. The uterus becomes distended with this accumulation. It is increased by the addition of further fluid of a watery character, poured out by the lining of the uterus, and when distention reaches a certain point, it is expelled. That is to say, it is partly expelled, but after a time further distention occurs, followed by a fresh expulsion. I have observed many cases of this kind; in fact, the occurrence of puriform leucorrhœa coming away in gushes is, by itself, almost diagonistic of the existence of a chronic flexion of the uterus, and during an experience of some years, this sign has proved of great value. Patients suffering from this affection sometimes describe what they term little abscesses bursting from time to time. In certain rare cases the uterine contents are actually offensive to the smell, the fluid having become putrescent before it is discharged.

The condition of the lining of the uterus in those cases of chronic flexion leading to retention and decomposition of the catamenial fluid is peculiar. The uterus is naturally irritated, the lining membrane secretes more fluid than usual. There is, in short, what is termed endometritis. But the view expressed above as to the process actually going on in cases of endometritis is very different from that usually entertained. It is, nevertheless, sustained by facts, and it will be found that if provision be made for the free escape of this retained irritating fluid the endometritis will cease.

A very important further effect follows in a considerable proportion of these chronic cases of flexion with retention of uterine secretion; I mean dilatation of the uterine cavity and hypertrophy of the uterine walls. My friend, Dr. John Williams, has directed attention to the circumstance that we are too apt to forget that the uterus is a hollow muscle, liable to become hypertrophied, like other hollow muscles, when the organ is called upon to exercise an unwonted degree of action. Thus the existence of necessity for increased expulsive action will necessarily have a tendency to increase the thickness of the uterine wall. It is a fact that that there is evidence of excessive muscular action in cases of dysmenorrhœa, and it is also a fact that in cases where the inter-catamenial discharges above mentioned occur, the body of the uterus is unnaturally large. The physical effect of the distention of the uterus in enlarging its cavity must also not be forgotten; the uterine cavity becomes thus increased in dimension.

3. *Menorrhagia.*—It happens, not seldom, in these cases of uterine distention and retention that the quantity of blood poured out at each catamenial period is very excessive. In fact, menorrhagia is observed. This menorrhagia has, in most instances, a mechanical origin. Menorrhagia does not, of course, arise solely in cases of uterine flexion; there are other causes unquestionably; but, nevertheless, chronic flexions and severe menorrhagia are not rarely associated as cause and effect. Cases of this kind usually go on from bad to worse; the period becomes gradually longer and longer, the quantity of blood lost greater and greater; the uterus, perhaps, succeeds in expelling its contents, but, becoming more and more enlarged, the surface from which blood is poured out is proportionately increased in area. The drain affects, in time, the general health, and this, in its turn, affects the nutrition of the uterus. Consequently, it may become hypertrophied, loose, and wanting in *tonicity*. The blood, more and more watery in character, oozes out more readily as the weakness increases, and other evidences of prostration necessarily show themselves.

Thus a decided flexion of the uterus may cause—First, slight dysmenorrhœa; secondly, dysmenorrhœa, with retention and intermittent discharge; next, purulent

intermittent discharges; and, concurrently, or still later on, severe menorrhagia may be added. The order thus indicated is by no means always closely observed.

The presence of clots in cases of menorrhagia is sometimes noticed. Sometimes such clots are formed in the vagina, but more generally they originate in the cavity of the uterus. Retention of blood is, of course, the first event in such cases; the blood so retained becomes clotted, and has finally to be expelled. The passage of the clot through this narrow internal os uteri necessarily occasions much pain. The dysmenorrhœa is most severe in those cases where clots have to be got rid of, and the pain is sometimes of a most agonizing character. In some cases the clot never is expelled as such, but becomes broken up. Probably some of the cases where a sanious leucorrhœa is observed for a few days after the regular period is over are cases of this kind; the clots retained break down, and the debris are gradually, but slowly, expelled.

It must be further remarked that the difficulty experienced by the uterus in relieving itself of the retained products in cases such as above described, is materially increased by the dependent position of the pouch containing the fluid. When the patient is upright, and the body of the uterus strongly bent forward or backward, the action of gravity is opposed to the evacuation of the uterine contents. Thus, in the retort-shaped uterus, the enlarged pouch hangs downward, forward, or backward, as the case may be, and the fluid must move really upward, in order to pass through the internal os uteri, when the obstruction which exists further adds to the difficulty. The double difficulty of moving upward in a direction opposed to the action of gravity and moving round a corner, presents itself under such circumstances. Clinical observation of these cases offers convincing proofs of the operation of these natural laws. Thus it may be found that in a case of anteflexion, with purulent retention, the discharge is free and continuous so long as the patient remains in bed, but, on rising in the morning, it suddenly ceases, appearing only in gushes at intervals during the day, and on lying down again at night a further comparatively free and continuous escape of fluid occurs. What is this but the result of the action of the laws of gravity? In the upright position the flexion is intensified, the aperture of the internal os more closed, the pouch of retained fluid in a hanging dependent position. Place the patient in the horizontal position and gravity no longer opposes, to so considerable an extent at least, the escape of the retained contents. The further analysis of these cases into such as are benefited by the prone position for retroflexion, and by the dorsal position for anteflexion, is made for us by the facts occurring in actual cases. For the evacuation is rendered more easy in retroflexion cases by the prone position, and the reverse in anteflexion, for obvious reasons.

The foregoing considerations regarding the effect of alteration of shape, and consequent narrowing of the internal os uteri, in disturbing in various ways the function of menstruation, commend themselves on what may be termed *à priori* grounds. But I have to remark concerning them that they are really generalizations from many carefully observed cases. The facts came first, and I attempt now simply to render an explanation of them. The above explanation is fully in accordance with what is readily observed and observable. But I may add that in the course of treating these maladies opportunities are ever presenting themselves for observing the behavior of the uterus under varying circumstances. The effect of treatment is useful in conveying information as to the nature of the disease. Thus, when dysmenorrhœa disappears on straightening the uterus, it is natural to conclude that this pre-existing flexion had much to do with the difficulty experienced. When we

find that a troublesome leucorrhœa undergoes immediate mitigation on so altering the shape of the uterus that its contents can escape, it is not extraordinary that there should be a disposition to connect the leucorrhœa and the uterine distortion as effect and cause. The effect of treatment is, in fact, a sufficient answer, even if there were no other, to those who would ignore the existence of an intimate connection between uterine distortion and these various effects.

Undoubtedly all cases of dysmenorrhœa, all cases of leucorrhœa, all cases of menorrhagia, are not included in the description above given. It is not intended that they should be. Dysmenorrhœa, leucorrhœa and menorrhagia are occasionally traceable, certainly dependent, indeed, on other alterations and conditions of the uterus or other organs, and flexions of this organ are not chargeable with these symptoms in all cases. But in a very large majority of cases uterine distortion can be truthfully arraigned as the prime mover and originator of them.

The Viburnum Prunifolium as a Uterine Sedative.

Dr. B. B. BROWNE calls attention, in the Maryland *Medical Journal*, February, 1878, to the value of this indigenous plant, and illustrates it by the following cases:—

October 28th, 1877, 9.30 P.M. Mrs. D.; aged 28; last child 18 months old, which she continues to nurse; menstruated last from 24th to 28th August; was taken with pains and uterine hemorrhage about 6 o'clock in the evening. Os dilated sufficiently to allow one finger to pass; blood came freely in gushes, at intervals of about three minutes. Ordered half a teaspoonful of the fl. ex. viburnum every half hour, until hemorrhage was checked; after the third dose there was no more hemorrhage, it having gradually diminished after the first dose; she continued one-half teaspoonful three times daily for three or four days.

October 17th, 1877. Mrs. R. C.; in the seventh month of pregnancy; had been flooding profusely for four or five days; ordered fil. ex. viburnum, ʒj to be taken at once, and ʒss every half hour until checked; the hemorrhage was entirely checked after taking a few doses.

In two cases of menorrhagia, in which the menses had always lasted seven or eight days, they were decreased to five days, and were much diminished in quantity. In these cases the viburnum was taken in ʒss doses three times daily.

September 14th, 1877. Mrs. H. E. B.; aged 30; in the seventh month of her second pregnancy; for the past two months has had almost constant headache, associated with insomnia, impaired vision and vertigo, œdema of the face and of the upper and lower extremities, frequent nausea and vomiting, mouth and tongue very sore, and excessive ptyalism; urine highly albuminous; was treated for the albuminuria, which gradually diminished, and in about a month was altogether absent. She was now entirely relieved from the headache, vertigo and œdema, but the ptyalism and sore mouth and tongue were, if anything, even worse than when I first saw her. None of the usual mouth washes for this complaint seemed to give her any relief; she used chlorate of potash, borax, bismuth, slippery-elm infusion, emulsion of bitter almonds, with hydrocyanic acid, belladonna, etc.

About the 1st of November she commenced taking ʒss of the fl. ex. viburnum every three hours; her mouth soon commenced to get better, and in less than a week gave her no more trouble.

Cases of Pudendal Hematocele in Virgins.

Dr. G. H. BENJAMIN, of Albany, writes to the New York *Medical Record*, February 9th, 1878—

The difference of opinion that has existed between writers on this subject, in relation to its occurrence in a non-pregnant state, has led me to report the following cases, which have come under my observation during the past two months:—

CASE 1.—Miss A., aged 19 years, is strong, healthy, and of large physique; has never suffered from any sexual difficulty whatever. Upon being called to attend her, she stated that in descending the stairs she had in some manner caught her foot in the carpeting, and had been thrown violently to the foot of the stairs. Upon regaining her consciousness, she felt a burning and pricking sensation, and a feeling as though something had given way near the vulva.

Making an examination, I found a tumor occupying the areolar tissue of the right labia, in size about that of an egg.

CASE 2.—Miss S., aged 23, met with the accident while skating. Coming in contact with another skater, both fell, she striking the vulva on the skate of the other party. She immediately felt pain, burning, and the sense of giving way. Examination revealed the presence of a tumor occupying the entire length of the right labia. Both labia were very much bruised and swollen. The sharp point of the skate had made an ugly wound in the perineum, about an inch in length, dividing the sphincter muscles of the vagina and anus. The tumor was the size of an orange, very tense and painful; for an hour it continued to enlarge. Local applications were ordered, and sufficient opium given to insure rest.

CASE 3.—Miss D., aged 21 years, employed as a servant, received the injury by falling and striking the part violently on the handle of a wash tub. In this case the tumor was small, but little larger than a walnut, and situated rather higher on the labia than the others; there was little pain, and it could be moved backward and forward, simulating very closely a hernia.

In each of these cases the same treatment was adopted, viz., flaxseed poultices, until pain and inflammation had subsided, after which I introduced a small needle connected with a Dieulafoy aspirator, and removed such fluid as the sac contained, after which an injection of alum, grammes viij to water ℥j, was injected and allowed to remain five minutes. The sac was then opened, and the finger introduced, and the clots removed. No hemorrhage of any consequence occurring, a simple pad and T-bandage completed the dressing. Recovery in each case was rapid. My object in using the aspirator and the injection of alum was to produce as firm a clot as possible, to control hemorrhage, and to excite a little inflammatory action for the purpose of closing the wound quickly.

It may be said that these cases are not fair examples, being entirely due to traumatic causes, but I have yet to learn of a case occurring, in the pregnant or non-pregnant state, that can be said to be purely idiopathic in its origin. The fact that in each of these cases the tumor occurred on the right side, seems to add weight to the statement of Boer, viz., "that the right side is more frequently the site of this condition." In the first case cited there were no signs of direct violence, the condition being due to muscular strain.

III. DISEASES OF CHILDREN.

Puerperal Infection of New-born Children.

There are recorded three cases of this kind in *Centralblatt für die Med. Wissenschaften*, December, 1877. The first was under the observation of Von Hecker, and is recorded as follows: A woman in the last stages of pregnancy was operated on for tracheo-stenosis, which threatened death. Subsequent to the tracheotomy it became evident that a fatal issue would ensue, from secondary hemorrhage, and Cæsarean section was done forty hours later, to save the child. The mother died, and the child, when one and a half hours old, was taken into the confinement ward. It became sick on the following day, with symptoms of puerperal infection, as shown by dyspnœa, high temperature, dislike of nourishment, and grayish-yellow color of the skin, and died forty-eight hours later. The examination showed double purulent pleuritis and pneumonia. As the umbilical cord had not yet sloughed off, infectious miasm was apparently admitted by means of the respiratory function.

Kustner has collated two cases where children, aged respectively two and three days, died of pneumonitis and pleuritis. Both children were exposed to inhalation of the discharges, which in one case were certainly putrid. One mother died on the fourth day, of septic poisoning with peritonitis; the other had facial erysipelas and uterine inflammation. It is concluded by Kustner that the lochiæ in impure air become a particularly good generating fluid for fermenting bodies, and may produce pneumonia and septic poisoning if inhaled when putrid, or if they give rise to a putrid condition in the lungs subsequent to the sojourn of the child in the impure air.

The Treatment of Ophthalmia Neonatorum.

These cases have been treated with very uniform success at the Cincinnati Hospital. Dr. S. C. Ayres, the attending physician, thus describes the course pursued, in the Cincinnati *Lancet and Observer*, January, 1878:—

The eyes are cleansed every hour or half hour, or even oftener in cases where the discharge is very profuse, by gently separating the eyelids with the fingers and removing the accumulated pus with a soft rag or camel's hair brush. A solution of alum, gr. ij, ad. aqua ℥ss., or of argent. nit., gr. ij. ad. aqua ℥j., was dropped into the eye every hour or two.

Cold compresses are used in many cases. They are generally well borne and are grateful to the little patients. They must be changed frequently, to accomplish any good, but care must be taken, in delicate children, not to abstract too much heat.

Every morning the eyelids are everted and brushed with a solution of argent. nitrat. grs. v. ad. xx ad. aq. dest. ℥j. according to the severity of the case, and the lids washed with tepid water. Unless the swelling of the lids mechanically prevents it, the cornea is inspected *daily* in each case. As the case improves the interval between the instillations of alum and argent. nitrat. is continued in a weaker or stronger solution, until every trace of the disease has disappeared.

The greatest stress is laid upon the thorough cleansing of the eye in the *acute* stages of the disease, and this is attended to, not only by day, but by night.

To this part of the treatment do we owe the immunity of the cornea from ulceration. The pus is neutralized or coagulated by the action of the nitrate and of silver alum, and its corroding effects thus prevented.

Another important point in hospital treatment is that the cases receive attention *immediately* the slightest swelling of the lids is noticed, and the severity of the disease is probably thus diminished.

When the lids are very much swollen, their eversion is an easy matter. Slight pressure with the tip of the index finger upon the lid, near the edge of the orbit, will generally suffice, or a probe or the handle of a camel's-hair brush may be used instead of the finger. As the lids get thinner their eversion is much more difficult. Then it is better to seize the ciliæ between the index finger and thumb, or the loose skin near the margin of the lid, and draw it a little down and out from the ball, and at the same time make pressure upon the upper edge of the tarsus, which, if properly directed, easily everts it.

The best plan is for the operator to lay the child across the nurse's lap and take its head between his knees, after first protecting them with a towel. In this way he can control the motion of the child's head most easily, and make the applications most effectually.

Enlargement or Inflammation of Mediastinal Glands.

Dr. GOODHART read a paper, at one of the branch meetings of the British Medical Association, on enlargement or inflammation of the mediastinal glands. Four cases were narrated in which enlargement of the bronchial glands, or thymus, had existed in children, with marked paroxysmal dyspnœa, and in all of which death had apparently resulted from suffocation. In another case, similar enlargement in an adult, due to acute inflammation, was thought to explain coma and other symptoms of defective function of the medulla oblongata and pons varolii: viz., staggering gait, defective speech, difficult deglutition, salivary dribbling, and disturbed cardiac rhythm. The author called attention to the fact that many of these cases of bronchial adenopathy occurred in robust-looking children; and he drew the conclusion from this, that the origin of the enlargement was a state of continued over-feeding, and suggested that neither this form of the disease nor tabes mesenterica were necessarily to be treated with cod-liver oil and steel-wine. These remedies tended to make matters worse rather than better in some cases; and restriction of diet, both in quality and quantity, often did more than medicine. He next discussed the pathology of the affection, and considered that the theory of reflex paralysis, advocated by Brown-Séquard in genito-urinary affections, held good here; and that, as a consequence of the involvement of the peripheral branches of the vagus, which was shown to be present, there was a central arterial spasm or immediate irregular nervous discharge; and thus the various morbid phenomena observed in these cases came about. He considered the paroxysmal dyspnœa due to a muscular spasm all through the lung, not merely to a glottic spasm; and, with regard to the more serious condition of coma, this also might be occasioned in a similar manner, and some corroborative proof of this was afforded by certain instances of sudden death after surgical interference with the pleura. He did not think, however, as some would appear to do, that all forms of paroxysmal dyspnœa in children were due to enlargement in the mediastinum; on the contrary, some appeared due to central and possibly epileptic disturbance, others to various peripheral stimulants, of which glandular enlargement formed only one. Under the head of treatment, discussion was invited upon the following lines. 1. Tracheotomy is of no use in urgent inspiratory dyspnœa, a fact strongly pointing in favor of the effective spasms being not in the glottis alone. 2. If any remedies are useful, belladonna in large doses,

twenty or thirty drops of the tincture, repeated every three or four hours, is the most promising. 3. With respect to diet, starving is better than stuffing, in some cases. In concluding, the difficulties of diagnosis were alluded to, and the impossibility, in most cases, of establishing anything upon a sure basis by means of percussion.

The Moist Girdle for Pulmonic Inflammation of Children.

Dr. Q. C. Smith, of Cloverdale, California, writes to the *Pacific Medical and Surgical Journal*, January, 1878:—

For several years past I have been in the habit of applying to small children who suffered with any acute pulmonic inflammation the moist girdle, as directed by Vogel, of Dorpat; and I have found the measure, to say the least of it, greatly to promote their relief. I manage it thus: A piece of white woolen flannel, two yards long, wide enough to cover the patient's body from the hips close up under the armpits, after being wrung out of warm water so that it will not drip, is closely, but not oppressively so, wrapped around the body, and the terminal end secured by two small pins. This moist wrapper is snugly covered by a dry one, which outer wrapper must be changed as often as it gets wet. The inner wrapper should not, ordinarily, be removed for several days, but is to be kept moist by applying, as often as necessary, warm water with a small soft cloth or sponge. In from four to seven days, when the more urgent symptoms have been subdued, the moist girdle may be supplanted by a dry one, which should be applied for a few days longer. Of course, the attendant will not neglect to make use of such other remedies and measures as may be deemed necessary in any given case.

I do not call attention to this measure because it is new, but for the reason that I think it is too much neglected, and its remedial value greatly under-estimated, by a majority of our general practitioners, in the treatment of acute pulmonic inflammations of small children.

Treatment of Cholera Infantum with Rhubarb.

Dr. W. M. Gross, of Clyde, Illinois, writes to the *Ohio Medical Recorder*, January, 1878:—

The very best remedy, in my judgment, for cholera infantum or summer complaint in children, is calcined radix rhei.

My attention was called to it incidentally during last August. I was treating a little patient, aged six months, affected with this dreadful trouble; had used all the reputed remedies for this disease, but with little or no effect. When my attention was called to it, I prepared some by putting a portion of the root in an iron vessel and burning it until it was easily pulverized; of this I gave about five grains; the child became quiet and seemed free from pain, and in about three hours the bowels moved again, passing a changed and even larger evacuation than at any previous time; and from that moment it began to get better, and in a few days was entirely free from the disease. The success attained in this case led to the use of the same drug in a number of similar cases, and with the same results.

In the forms of summer complaint incident to debility of the bowels, either when this condition depends upon general causes alone, or is the immediate effect of irritating ingesta or biliary derangement, rhubarb, in this form, is superior to almost every other medicine.

The Therapeutical Value of Sea Air in Diseases of Children.

The following summary is contained in an article on this subject in the Proceedings of the Medical Society of Kings county, N. Y., May, 1878, by Dr. J. WALKER.

The Air at the Sea Coast—its Value.—The tonic properties of sea air are due, 1st. To the saline particles found in the spray or "dust of the sea," and which are carried hither and thither by the winds and waves; and, 2d. To the freshness of the sea-breeze, which is at its best when blowing "from a good point, over a large extent of open sea, when it has not been confined by any obstacle or has not been mixed in its passage with any deleterious exhalations," or is not much dampened by rain-fall. From the peculiar formation of the coast, Coney Island and Rockaway are more exposed to sudden damp winds than Atlantic City or Beverly, which have water in front only. Owing to these damp winds, weakly children may be suddenly prostrated with a diarrhœa or bronchitis. Then, too, the dampened sand does not dry as quickly as at Atlantic City. For these reasons an existing bronchitis or diarrhœa may be aggravated at Coney Island, in spite of care, when it would not be at the former place. The insensible, as well as the sensible gases of putrefaction are particularly poisonous to weakly children. The New York garbage boats, as they passed through the Narrows and beyond, sent landward an odor which more than once prostrated the sickly ones.

The blowing of steam whistles, the clangor of bells and the Babel of sounds incident to crowded sea-side resorts are prejudicial to rest and recovery.

A land breeze, if a hot one, is much more debilitating than any similar one from the sea. It induces nervous exhaustion, vomiting and diarrhœa. Seldom do we find ourselves at the seashore for more than an hour or two without an appreciable breeze. The nights are generally cool enough for sleep; while the cool salt winds through the day tone up the skin, and its ally, the mucous membranes, inducing a healthy appetite, good digestion, free circulation and strengthened nerve-power. Digging in the warm sand, running, playing, the sun bath, together with suitable diet and sea-bathing, assist the atmosphere.

Sea Bathing—its Value.—Sea bathing owes its efficacy to the temperature of the water, to its chemical composition, its density, its motion and its absorption by the skin, to the invigorating properties of the air, to the excitement, and to the necessary muscular exercise. The first effect of a sea bath is to chill the surface of the body, to pucker the skin, to drive the blood inward; then comes the reaction, followed by depression, or the "second shiver," which, if prolonged, may prove serious; consequently children should be removed from the water before this occurs, and thoroughly dried, or allowed first to run about in the sun for a few moments. The best and safest time for children to bathe is when the tide is at its full. Weakly children may be educated oftentimes to sea bathing, by beginning with sponge baths of warmed salt water. Even babies under six months of age may be benefited by a dip or two in the sea. Daily bathing will answer for the majority of children; but there are children who cannot bear more than one or two baths per week. Frightened children are better out of the water than in. Sea-bathing, properly used, at proper times, increases the appetite, softens and invigorates the skin, increases the flow of blood, the number of respiratory movements and the action of the heart, encourages elimination, growth and development. When improperly used, too often, or for too long a time, in persons of thin skin or of great nervous susceptibility, it causes nervous prostration, diarrhœa, dysentery, eczematous diseases of the skin,

boils, earache, headache, vomiting, faintness, and in one case that I saw, intermittent fever.

Diseases and Disorders Relieved by Marine Medication.—There is no doubt but that chronic conditions are generally relieved sooner than acute ones; yet vomiting and diarrhœa the result of hot weather will almost invariably cease within 48 hours after the child reaches the seashore, if the fresh, but dry, sea breezes prevail.

General debility, the various diathetic conditions, atonic dyspepsia, the indigestion of spoiled children, chorea, hysteria, atonic and malarial congestions of the abdominal viscera, nervous excitability, chronic catarrh and cough, incontinence of urine dependent upon nervous debility, stomatitis, difficult dentition, scrofulous affections of the joints, and impetigo, are much benefited, especially after a prolonged stay at the coast of several weeks. It is probable that some children relieved at seaside homes return to the heat and unsanitary surroundings of cities only to die, while others have been tided over into the calm waters of health. It is certainly to be regretted that a more prolonged stay cannot be made in some cases, but the "greatest good to the largest number," is the prevailing sentiment among philanthropists.

Diseases and Disorders Not Relieved.—Rheumatism of the muscular and fibrous tissues, heart disease, epilepsy, diseases of the spinal cord, or any affection which requires as necessities rest and freedom from noise.

Diseases and Disorders Made Worse.—Consumption, when the breathing is impaired, diarrhœal affections, when associated with passive congestion or with inflammation of the lungs or brain, meningeal troubles, most cases of eye affection, unless dependent on struma, when they are relieved, and skin eruptions, mainly of a neurotic character.

In addition to sea air, sea bathing, exercise, good food and proper nursing, a motherly care is necessary, to raise children at the sea coast, as well as inland. Allowing children to eat peanuts, candy and greasy cakes, to drink large quantities of water, to be thinly clad at inopportune times, causes much sickness; while diarrhœa is produced in this way, it is equally true that children perfectly regular as to their evacuations at home become constipated on first going to the seashore, owing to checking of the perspiration, congestion of the liver, and consequent diminished secretion; or diarrhœa and dysentery are the results of a congested intestinal canal. Dr. Bennett writes that he has "found many persons suffering from piles, who seldom or never suffered with them elsewhere."

"The children in our large cities who most need a change of air are those under five years of age, those who are sick or debilitated, those from tenement houses and private and public institutions for children, those who have weakly mothers to care for them. These, it is hoped, the gentlemen of this Society will send to us during the summer of 1878. With the advantage of one summer's experience and improved quarters, it is believed that better results will yet be obtained than have hitherto been." The time should come when permanent "homes" will be established in the mountains and on the sea coast. In these will the best results be obtained.

On the Treatment of Membranous Croup.

In the New Orleans *Medical and Surgical Journal*, February, 1878, Dr. O. S. Williams, of Texas, writes on this topic—

I would not be understood as positively eschewing mercury in the treatment of croup; because of its easy administration, it might be administered when other

more bulky and nauseous medicines could not be given. And when used occasionally, as a simple purgative, it acts as well but no better than any other purgative.

Now, as to the emetic treatment, all will concur in the opinion that emetics, when judiciously given, are productive of much good; but that much harm has often resulted from their injudicious administration, no physician of any experience will deny.

Unquestionably, in the primary or formative stage of croup, or even later in the disease, emetics, by promoting a freer secretion of mucus, and by occasionally inducing emesis, may remove from the larynx, by the powerful expiration which it causes, albuminous or fibrinous substances which are still in a diffluent state, and which, by remaining, might become pseudo-membrane. Emetics may also in this stage be beneficial, through a sedative influence upon the circulatory centre.

But how often are these limits transcended, and we see the child that is gasping for breath, on the verge of dissolution, and so exhausted as to be unable to support its own head, save upon its nurse's arm, still dosed with emetics that have figured largely in reducing his strength, and sapping the vitality of his youthful being or existence?

But I am making this article too long; so I will leave controverted issues, and give a system of treatment which has succeeded well in my hands.

The case reported in this article was under treatment, from the 9th of April until the 21st of June, aggregating seventy-two days. No less than three different times during this period all his symptoms improved, and medicine was withheld, but each time to be followed by a recurrence of all his former symptoms, again to be subdued by the same treatment—proving conclusively that I was battling not only against a most formidable foe, but against one eager to renew the conflict upon the slightest cessation of hostilities. It proved another thing—that in my remedies I held a balance of power that was too much for my antagonist.

This was a severe test case, and it tended to strengthen my confidence in the treatment adopted, which consisted of—

℞. Muriate ammonia,			
Chlorate pot.	āā	ʒiij.	
Etherial tinct. lobelia,		ʒj.	
Tartrate antimony,		gr. j.	
Valerianated syr. rhubarb,		ʒiv.	
Aqua,		ʒiijss.	M.

Two teaspoonfuls in two tablespoonfuls of cream or milk, every four hours, until all symptoms improve, when the interval should be lengthened.

As this child lived in a malarious locality, quinine was administered in 4-gr. doses, night and morning, for days together.

The chlorate of potash should be thoroughly pulverized, and then with the muriate ammonia mixed with the water, and well shaken before adding the syrup of rhubarb, so that any potash remaining undissolved may be suspended in the solution and given in each dose. The valerianated syrup is made as follows:—

℞. Syr. rhubarb,	℥iv.
Tinct. (saturated) valerian,	ʒij.
Oil sassafras,	gtts. xx.
Piperin,	gr. x.
Subcarb. soda,	gr. xx.

I used no topical application to the throat, and used nothing externally except

tinct. iodine. If this last did any good, I believe it arose from its inhalation, rather than any counter-irritant effect it was likely to have produced.

Now when this child was first brought to my office, and even for weeks afterward, its stridulous breathing could be heard twenty or thirty yards distant. I might with propriety remark, that I ordered milk punches continuously, as the child was unable to take any solid food. It made a good recovery, and is, at this writing, hearty.

I gave purgatives only to overcome constipation.

Diphtheroid, or Modified Diphtheria.

An article in the St. Louis *Medical and Surgical Journal*, January, 1878, with this title, is contributed by E. FRANK WELLS, M. D., of Minster, Ohio. He says:—

I propose the name "diphtheroid" for a modification of diphtheria, which differs so essentially in some of its features from that disease as to merit separate attention. I am not aware that the attention of the profession has ever been specially directed to this point; authors usually contenting themselves with the vague statement that "during the prevalence of an epidemic of diphtheria cases of sore throat are of frequent occurrence." I shall endeavor to show that these cases of "sore throat," occurring during the prevalence of an epidemic of diphtheria, depend for their existence upon the epidemic influence; are, in fact, cases of diphtheria, essentially modified, and bearing the same relation to diphtheria that varioloid does to variola.

In describing the disease in question, and drawing the line of distinction between it and diphtheria in its common form, I shall follow the usual plan of calling special attention to its features under the separate heads of symptoms, morbid anatomy, pathology, causation, diagnosis, prognosis and treatment.

Symptoms.—The patient is generally taken with a chill, more or less well marked, followed by fever; or he complains of irregular chilly sensations, especially upon exertion, followed by flashes of heat. The attack usually comes on in the afternoon or evening, and the fever continues with but slight abatement until the next morning; at which time either an intermission or a remission occurs. In the evening a second febrile paroxysm is experienced, but of less intensity ,and of shorter duration. With the subsidence of the second paroxysm the fever generally disappears. Paroxysms may recur the third or fourth time, but this is comparatively rare. During the first night the patient is sleepless, or if he does obtain some sleep, his rest is disturbed by frightful dreams. Mild delirium may also occur. These symptoms are experienced in a milder form during the first part of the second night. Headache is a prominent symptom during the continuance of the febrile stage, and a severe stabbing pain in one or both ears may be noticed in some cases.

In general it is not until the subsidence of the first febrile paroxysm that the patient complains of any symptoms relating to the throat. He now remarks a dryness of the fauces and an uneasy sensation attending the act of deglutition. The patient says that his "throat feels stiff." Inspection will reveal the parts to be intensely congested. The tonsils and other glands of the neighborhood will be found enlarged. The uvula is elongated and sometimes touches the tongue, thus giving rise to continuous and futile efforts at swallowing. It may converge to either side, and may be glued to the tonsil by the viscid mucous secretion. In a short time the inflamed mucous membrane begins to secrete a very viscid mucus, which, unlike the secretion of diphtheria in its usual form, has no tendency to form false membrane. From its extremely viscid character, and because the mucous membrane is peculiarly insensible to its presence, it is not removed before putrefaction sets in, thus causing

a fetid odor to emanate from the diseased parts. This morbid action of the mucous membrane reaches its acme on the second and third days, after which it rapidly declines, so that in two or three days later nothing abnormal is to be seen save a slight redness of the mucous surfaces and more or less engorgement of the tonsils.

Respiration and phonation are not interfered with unless the parts below the glottis are involved, in which case the diagnosis will be made out with difficulty.

The duration of the disease is from three to six days, and convalescence may be complicated with any of the sequelæ of diphtheria. Relapses are not rare, and may occur either as diphtheroid or as diphtheria.

In this connection, it may be well to give condensed histories of four cases of this form of disease, selected from a large number that have fallen under my care during the prevalence of the present epidemic, which began in July, 1877, and continues with slightly diminished fury at the present time. Through fortuitous circumstances I have seen a very large number of cases, near two hundred, and of this number fully one-fourth presented the disease in its modified form. I have no doubt that if attention be directed toward the subject, this would be the experience of epidemics of diphtheria generally.

CASE 1.—J. W., aged four, was taken September 7th, in the afternoon, with a well-marked chill, followed by febrile reaction, which continued during the night. She passed a very restless night, sleeping but little, and that little disturbed by dreams. I saw the patient next morning and instituted a most searching examination of the visible air-passages, expecting to find the false membrane of diphtheria, as other members of the family were then suffering with that malady. I found the parts intensely congested, the tonsils swollen, and a moderate secretion of viscid mucus. In the afternoon I saw the patient again. At this time fetor was well marked. In the evening she had a recurrence of the fever, but the paroxysm was milder and of shorter duration, leaving the patient at midnight to obtain a quiet sleep. Next day there was but slight change in the appearance of the throat symptoms, but she had no more fever and her appetite was better. On the fourth day the mucus secreted was thinner, was easily removed by the patient, and consequently the fetor had disappeared. No sequelæ.

CASE 2.—Miss S. H., aged 18, October 10th, was taken with a chill in the afternoon, followed by fever, which continued during the night. Her sleep was disturbed by dreams. When I saw her the following morning, the fever had returned. The fauces were congested and the posterior nares were also involved. The tonsils and lymphatic glands of the neck were enlarged. There was great fetor, and the parts were very insensitive to the touch. Severe stabbing pain in the left ear was complained of. Recovery in four days. Five other members of this family had previously suffered attacks of true diphtheria, and for three weeks she had acted as their nurse.

CASE 3.—J. B., aged 12, was taken, October 17th, with a chill, followed by a high fever, which continued through the night. I saw him the next day, and found the tonsils largely swollen. The pharyngeal mucous membrane was intensely congested, and secreting a viscid mucus, which, as usual at this stage, exhaled a very fetid odor. The fever returned in the evening, but next day he was better, and in four days from the time he was attacked nothing but an enlarged tonsil was left to show that any morbid agency had been at work in the vicinity. From November 1st to the 3d, inclusive, he suffered a relapse, in which the former

symptoms were duplicated, and in addition, a partial paralysis of the veil of the palate occurred as a sequel, and still continues.

The mother and all his brothers and sisters had the disease (diphtheria), in its worst form, and one, a boy of four, died from its effects.

CASE 4.—Mrs. B., aged 81. This aged lady is a member of a family of seven, one of whom had had diphtheria with the formation of false membrane; all the other members suffered with modified diphtheria. Mrs. B., was taken October 1st, with chilly sensations and flushes of heat, beginning at noon and continuing until the next morning; the tonsil became swollen, and she complained of stiffness of the throat and pain, upon deglutition, of such intensity as to cause her to abstain from taking food. Inspection in the evening showed the mucous membrane of the parts reddened and emitting a fetid odor. No false membrane was to be seen, but on the tonsils was a thin layer of viscid mucus. During the following night she again had fever, and, as on the previous night, obtained but little rest. In four days she had completely recovered, save from weakness.

The four cases recited are fair examples of different phases of modified diphtheria, and have been selected from a list of more than fifty recorded cases that have come under my observation during the present epidemic. The cases presented all the symptoms and signs of common diphtheria, save the appearance of the false membrane, which, although carefully and often looked for in each case, was not to be seen, and no signs or symptoms pointed to its presence in inaccessible situations.

Morbid Anatomy.—The feature of this disease which is most prominent is the occurrence of a fever of greater or less intensity, accompanied by an inflammation of the mucous membrane and altered derma of various parts of the body, but having a decided preference for the pharynx and neighboring parts; attended by the exudation of a very viscid mucus, which adheres pertinaciously, and quickly undergoes putrefactive changes. The lymphatic glands in the neighborhood generally become enlarged. In the vast majority of instances the throat will be involved, and in such cases one or both tonsils are found swollen. The nares and Eustachian tube may be affected.

Pathological Character and Causation.—Diphtheroid is simply modified diphtheria, differing from the latter only in its local manifestations. Upon this, alone, depends its claim to a separate description and a distinctive name. Diphtheroid and diphtheria are constitutional diseases with a local manifestation. They are, in their essential nature, identical, and differ only in degree. They are caused by some unknown morbific material, acting generally as an epidemic, which enters the economy in a mysterious manner, and acts upon the circulation in some occult way. When once a community is subjected to the epidemic influences, contagion certainly plays an important role in the causation of individual cases.

Diagnosis.—The differential diagnosis will embrace the discrimination of diphtheroid from diphtheria and other forms of sore throat. The distinguishing of diphtheroid from diphtheria is a matter of practical importance, on account of their different relative danger. This is to be decided by the non-appearance of the false membrane in diphtheroid, and its invariable presence in diphtheria. Previous to the time for the appearance of the diphtheritic exudation these forms of disease cannot, with certainty, be distinguished, the one from the other. From other forms of sore throat it is to be distinguished by the presence of an epidemic influence and the peculiar nature of the general symptoms.

Prognosis.—Diphtheroid does not endanger life. The duration is from three to

six days only, and convalescence is usually uneventful. Occasionally the debility is out of all proportion to the severity of the attack, and in rare cases various paralyses may occur as sequelæ.

Treatment.—It will be found well, in most instances, to begin the treatment by the exhibition of a mild cathartic, and follow with the chlorate of potassa in full doses. This remedy seems to have a very beneficial effect upon the local manifestation in the throat. A gargle or injection of a strong solution of alum will be found useful in removing the mucus, and with it the fetor.

In judging of the success of any remedy in this affection, it is to be borne in mind that diphtheroid is an essential disease of definite duration, and tending to recovery. In the present state of our science we are not in possession of any remedy acting in a specific manner against the diphtheritic poison, and known to cut short the attack.

Management of Diphtheria.

The following rules and formulæ are given by Dr. C. E. BILLINGTON, in the New York *Medical Record*, January 12th, 1878:—

FORMULÆ.

No. 1. *Iron and Glycerin Mixture.*

℞.	Tinct. ferri chloridi,	fl ʒj.–ʒiss.	
	Glycerinæ,		
	Aquæ, aa	fl.ʒj.	M.

No. 2. *Chlorate of Potash Mixture.*

℞.	Potassæ chloratis,	ʒss.–ʒj.	
	Glycerinæ,	fl.ʒss.	
	Aquæ calcis,	fl.ʒijss.	M.

The weaker strength indicated of both mixtures is the one I generally employ.

I formerly used for a time, and published as a substitute for No. 2, a combination of

℞.	Salicylic acid,	℈j.	
	Sulphite of soda,	ʒj.	
	Glycerinæ,	ʒss.	
	Aquæ,	ʒijss.	M.

As this is less pleasant than No. 2, and probably no more efficacious, I have discontinued its use.

No. 3. *Spray Mixture.*

℞.	Acidi carbolici,	♏xv.	
	Aquæ calcis,	fl.ʒvj.	M.

To be used with a small hand atomizer, which I much prefer to the steam apparatus. Codman & Shurtleff's No. 56 is the most convenient. This mixture is more pleasant and less irritating, and probably more efficacious, than the more complex and stronger ones which have lately been much used. It is of unquestionable utility in laryngeal implication. Its pleasantness any one can test by throwing it in spray into his own mouth and throat.

RULES FOR TREATMENT.

1. Give a teaspoonful of No. 1 and No. 2 alternately, every half hour, except at night, when the patient may be allowed to sleep for an hour or two at a time.

2. Spray the throat with No. 3 for several minutes at a time, whenever the above mixtures are given—that is, every half hour. It is essential that the nurse be carefully instructed in the proper method of doing this. The mouth must be opened widely. When the child is too young to do this, the spraying must be omitted.

3. When there is nasal implication, the nose should be thoroughly syringed out with warm or tepid salt water, once, twice, or three times a day. I have lately employed no other agent. It should be done with the patient's head inclined forward, after the method which is described in my above-mentioned paper. It is very important that the physician know how to do this well, and generally, do it himself. I have always used a two-ounce hard-rubber ear syringe. It is absolutely essential that this have a suitable nozzle, which is not always the case.

4. Do not (as a rule) apply any brush or swab to the throat. I sometimes throw a drachm of No. 1, with a syringe, directly against the affected surface in the throat.

5. Do not (as a rule) give any quinine or other unpleasant medicine to children. This rule is of great practical importance.

6. Do not (as a rule) give alcoholic stimulants. Call this rank heresy—as the majority will! It is none the less true that your success will be greater without them. There are, of course, a few exceptions; those are the cases where a child that cannot be induced to take other nourishment will take weak milk-punch or egg-nog.

7. Nourish the patient with an abundance of cold milk, given frequently, to which a little lime-water may often advantageously be added. This rule is of the greatest importance. Even a bad case may be regarded favorably while the patient continues to take nourishment well.

In the Canada *Medical and Surgical Journal*, February, 1878, Dr. SHIRIFF urges the value of R. Bell's (of Glasgow) management of diphtheria. He recalls that this writer has recommended the throat to be swabbed every two hours with a mixture composed of one part carbolic acid to three parts of sulphurous acid, and of tinct. ferri perchloridi and glycerin, of each four parts, and to be applied gently with a camel's hair brush; also to take internally, every two hours, one or two teaspoonfuls of a mixture composed of ʒiij chlo. potass.; ʒiiiss acidi sulphurosi, and ʒiij tinct. ferri., perchloridi; ℥j glycerin, and water enough to make the mixture ℥vj. The internal mixture is given pure between the periods of swabbing the throat. I have modified this treatment to a certain extent, as it is hardly necessary to swab so frequently. My treatment is as follows: Having ascertained that the disease is diphtheria, I immediately swab the throat thoroughly with the mixture first mentioned. I next apply a pocket handkerchief wet in ice-cold water under the jaws, up to the ears, and supported in its place by a dry cloth tied over the top of the head. The cloth is wetted frequently. This wet cloth I continue from day to day, until all inflammation inside and swelling outside have disappeared. If I find much heat of skin, and rapidity of pulse, I give every two hours a dose of liq. ammon. acetatis and gelseminum, until the fever abates, which generally takes place in 24 or 36 hours. If a purgative is necessary I give a medicine called the Chelsea compound, of *pulv.* senna, sulphur, ginger, cream tartar, and powdered guaiacum, made into an electuary with thin syrup. I continue the swabbing until all the patches are gone, but the other mixture I continue as a tonic until the patient's strength has returned. I also use a gargle composed of salicylic acid with borax—7 gr. of the acid and 5 gr.

of borax to an ounce of boiling water. I sometimes add the sulph. carbolate of soda. That is the mode of treatment which I have pursued for a year with uniform success, the only fatal case being the boy of six years, who was so unruly that I could not manage him. Dr. Bell makes a similar statement that since he began this system of treatment he has not had a patient except two whom he could not control. My patients have generally recovered upon an average in three days, that is to say, the fever and diphtheritic patches have disappeared in that time, and the patients out of danger. I should say something regarding the nourishment. I generally give them milk, frequently, also, oatmeal porridge, beef tea, chicken soup, etc. In most cases my patients eat pretty well, and I have also noticed that little treatment is required during the night, except the changing of the wet cloths, as they sleep a good deal, and I agree with Dr. Bell that patients should not be wakened to give them medicine.

I have scarcely ever used stimulants, as I consider them injurious. I have once or twice given a teaspoonful of pure brandy, where there was much vomiting. I have also given chloral in five-grain doses, where there was a total want of sleep for over 30 hours. In one case my patient fell asleep in less than five minutes after taking five grains. She was a girl aged six, and had not slept for 30 hours.

Turpentine Inhalations in Diphtheria.

Dr. C. EDEL, of New York, writes to the *Medical Record*, January 19th, on this disease—

The object of my treatment is not to cure the primary pyæmic infection of the "malignant cases," or to cure the "secondary pyæmia" after the formation of membranes, but to prevent the absorption of the poison, the presence of which is indicated by the reactive fever.

Since the treatment of diphtheria by steam inhalations gives relatively the best results, I resolved to combine this method directly with a local disinfectant. For this purpose I use Tiemann's steam atomizer, in the following manner: I have the boiler half filled with water, add about fifteen drops of the oil of turpentine before each inhalation, and then close it. As soon as the vapor escapes, the patient is placed at a distance of three inches from the mouthpiece of the instrument. This distance I found more convenient than to apply the mouth directly to the mouthpiece, since the greater heat might prove injurious, and the force of the stream would frequently make it inapplicable to children. Formerly, I have used the turpentine with some water in the medicine cup, but this arrangement often fails, and I find it quite sufficient to put the turpentine into the boiler directly.

The inhalations are made every hour, for about ten minutes, day and night.

This treatment I have applied in quite a number of cases, and thus far with the most favorable results. Recent cases were cured in twelve hours, *i. e.*, the temperature was reduced and the sores in the throat were clean; in older cases it took sometimes twenty-four hours before the temperature became normal, and about forty-eight hours before the pharynx appeared perfectly clear.

I shall briefly relate a few of the more characteristic cases.

1. December 2d. W. W., a boy, six years of age. When I first saw the patient, he had been treated for three days with chlorate of potash locally, and tincture of iron internally. On inspection, the tonsils and pharynx were found to be covered by diphtheritic membranes. The boy complained of pain in the region of the sternum; his breathing was superficial, and he had very marked dyspnœa; his voice, how-

ever, was pretty clear. I continued the treatment for eight hours, but seeing that the infiltration had rather increased in extent, I resorted to the above-described inhalations. They were continued during the night, and after twelve hours the patient expectorated a piece of membrane five and a half inches in length and one inch in breadth, which had undoubtedly occupied the whole extent of the trachea; at the same time the pharynx was nearly clean. The pain of which the boy had complained ceased immediately after the membrane had been expectorated. The microscopical examination revealed, beside some epithelial cells, the presence of fibrine, small, round cells, and the peculiar organisms called micrococci.

2. November 29th. B. S., a girl, three years old. In this case I performed tracheotomy half an hour after I was called, on account of the great dyspnœa. There were no membranes in the throat, and I regarded the case as one of croup. A few hours after the operation the tube could hardly be cleaned from very tough membranes plugging the inner opening. Next morning diphtheritic membranes were seen in the pharynx. I ordered at once the inhalations, but, of course, in this case through the tracheotomy tube. The inner tube was taken out and the steam passed through the opening in the superior curvature of the outer tube, into larynx and pharynx. After having used the inhalations for twelve hours, the pharynx was clear, and some relatively thin matter was discharged through the tube. The child recovered entirely, with the exception of a paralysis of the vocal cords, which will probably be cured by faradization.

Muriate of Ammonia in Diphtheria.

Dr. W. W. Oglesby, of Weston, Oregon, writes to the Western *Lancet*, December, 1877, as follows:—

While, of course, not claiming originality in the use of am. mur. for this disease, I wish to call the attention of the profession to the marked success attending its use in my hands. With my first cases I pursued the stereotyped course, administering potass, chlor., quin. sulph., tinct. ferri chlor., with alcholic stimulants. The disease combated this treatment powerfully, and the recoveries were nearly uniformly slow and uncertain. Two of my cases ended fatally, despite good attention and the faithful use of the above remedies.

Being called to a case occupying the bed of a former victim brother, for four days I found the symptoms continuously growing more and more aggravated, presenting every evidence of approaching dissolution. As a last resource I tried the am. mur. In about ten hours the exudation began to dissolve, and was expectorated in tenacious, ropy flakes; and in subsequent cases often in complete casts. The expectoration was often so profuse as to resemble ptyalism. This condition continued until the throat symptoms were entirely relieved. From that time I have relied upon that remedy, with equally favorable results in every case. The one fatal case since, refused throughout to take any remedy. Delirium, more or less active, was a feature of a large majority of all the cases. I gave the following—

℞. Ammonia muriat,
Pulv. acaciæ,
Sacch. alb., aa ʒij.
Aquæ font., ʒiv. M.
Sig.—A teaspoonful every two hours.

When the depression was marked, I added alcoholic stimulants, and for a gargle used chlorine water.

On Tracheotomy in Diphtheria.

At a meeting of the Surgical Society of Ireland, in December last, Surgeon Major QUILL read a paper on this subject. He said that his attention had been particularly drawn to it by a case which he had under his care, in which tracheotomy had been performed with most satisfactory results. On June 12th, 1876, a boy, aged 5½ years, presented himself, complaining of sore throat and general sickness. On examination, the appearances were only those of tonsillitis; there was no false membrane. The treatment ordered was that he should be kept in bed; hot poultices applied to the throat, and beef tea and liquid nutritious diet administered. There was no diphtheria at the time in the barracks. On June 16th he had slight dyspnœa; there was nothing to account for this except tumefaction of the tonsils. The next day the symptoms were much aggravated; the tonsils were covered with white patches. The following treatment was then decided on: frequent inhalation of steam, application of nitrate of silver to the tonsils, tartar emetic until nausea was produced, and repeated hot baths. This treatment proved of no avail. Next day the child's appearance was much altered for the worse, his face being very much congested, and breathing most difficult. In consultation with Dr. Johnstone, it was decided to perform tracheotomy immediately. When the operation was about being performed, a fearful paroxysm came on, after which the child became, to all appearances, dead; notwithstanding this, the trachea was opened. Immediate relief was experienced, the child's appearance at once changed, the face lost its congested look, and air came freely from the opening. A double tracheotomy tube was then introduced. The second day after the operation another severe paroxysm came on, during which a large portion of false membrane, moulded in the shape of the parts, was discharged. The tube was removed on the evening of the fifth day, but was replaced on the morning of the sixth, in consequence of a slight return of dyspnœa. On account of complete paralysis of the fauces and pharynx, the child had to be fed with nutrient enemata. Complete recovery took place from this date. Dr. Quill discussed the merits and demerits of tracheotomy under such circumstances. The two great opponents of the operation were Dr. Cheyne and the late Professor Porter. The former said that the larynx was closed by spasm, which spasm was propagated to the trachea, and, therefore, that the operation would be useless. Dr. Quill maintained that the larger size and calibre of the trachea would justify the undertaking. The chief of Professor Porter's objections was founded on the uncertainty of the result; but Dr. Quill contended that all cases would prove fatal unless the operation was performed; he was also of opinion that had Mr. Porter, who wrote forty years ago, lived to the present day, he would have been led to change his mind on the subject. Dr. Quill believed diphtheria and false croup to be one and the same disease. He said that diphtheria, in its primary stage, was a purely local disease, and afterward became constitutional. On this supposition, he urged the advantage of early operation. He said that, where careful medical treatment had proved of no avail, it was the duty of a surgeon to operate, even though the chances of recovery were *nil.* Dr. Quill laid particular stress on the value of careful after-treatment; the most usual causes of death after the operation being bronchitis and pneumonia, he said that every precaution should be taken to avoid the possibility of such occurrence by keeping the air at a suitable temperature. Dr. Quill claimed special advantage for the large tube, as he said it was much easier for false membrane to be discharged through it than through one of smaller calibre. The boy on whom Dr.

Quill operated was a strong, healthy child; and, doubtless, the success obtained was in part due to this fact.

Acute Chorea Following Scarlet Fever.

The following case, read before the Detroit Academy of Medicine by JUDSON BRADLEY, M.D., is reported in the Detroit *Lancet*, February, 1878:—

Mary Ann B., aged four years, came down with scarlet fever August 21st, 1877. She had contracted the disease from a brother who had just passed through a mild form of the same fever. On the evening of August 22d the scarlet rash was out all over the child's body, but had a peculiar punctated appearance. The child also had sore throat, hot, dry skin, with anorexia and thirst, in fact, all the appearances of a sufferer from scarlet fever. The fever was treated with potassæ chlor., tinct. ferri chlor. and quiniæ sulph.

The patient was nearly convalescent, when, at my daily visit on August 31st, I found a great deal of nervous excitement, with constant jactitation and increased temperature. The bowels were moderately relaxed, and the kidneys were performing their functions well. At this visit I ordered chloral hydrate and potassii bromidum. These at first controlled the restlessness, but the high temperature remained. After two days the mixture of chloral and brom. potass. failed to control the motions at all. The jactitation had increased in severity, and now had developed into a well-marked chorea. By the advice of Dr. E. L. Shurly, who saw the case with me, I now gave hyoscyamus and cannabis indica extracts, in full doses, to correspond with the age of the child. These drugs also failed to give the relief we confidently expected. Still feeling that the abnormal muscular movements ought, if possible, to be controlled, as the strength of the child was failing fast, it was decided at a second consultation to give calabar bean; accordingly, I gave drop doses of the fluid extract of the bean, and found that by the exhibition of this drug I could control the choreic movements. I gave my dose about once in three hours, but suspended its exhibition when the child was quiet and slept. This treatment was continued from the 5th until the 22d of September, inclusive, when the choreic movements, which had been growing less and less daily, had ceased entirely. Meantime, alimentation was not neglected. The child was given beef tea, chicken broth, milk and quinine (quinine in such adynamic cases is more a food than a medicine); when the milk did not digest, I gave pepsin with good results.

During all the time that the chorea was present there was more or less increase of heat, the temperature ranging from 99° to 105° Fahr. The pulse rate was from 100 to 130 beats per minute, though seldom reaching 130. During the attack of chorea diarrhœa was persistent, of a bilious character, and caused, no doubt, by the muscular contractions of the abdomen. All drugs that would interfere with the digestion of the milk (which constituted the great bulk of the diet) were carefully avoided.

My note of September 28th reads: "Convalescence now seems fairly established. The child has a good appetite, and would begin to walk but for an abscess that is forming on about the middle third of the right thigh."

SURGERY.

I. GENERAL SURGERY.

The Open Plan of Treating Wounds.

The following report of the Surgical Society of Moscow is translated in the Boston *Medical and Surgical Journal*, April 25th, by Dr. G. A. Otis.

The report, signed by the president of the commission, Dr. G. Savostitzky, and unanimously indorsed by the society, presented the following conclusions:—

1. The principle of immediate and free contact of the wound with the ambient air, or the principle of aeration, is higher, more rational, and more practical than the principle of protecting the hurt surface against the action of the air.

2. The general method of the treatment of wounds, elaborated by the Surgical Society, and termed method of aeration, should now be recognized as most rational; for, on the one hand, it reposes upon a knowledge of essential anatomo-physiological properties common to all wounds without exception, as well as on the external agents to the influence of which our bodies are continually exposed; and, on the other hand, it is entirely confirmed by a multitude of facts and clinical observations.

3. The leading and essential rule of the method of aeration consists in avoiding in every way, in the local treatment, the exclusion (*non libre accès*) of air, and placing the wound in conditions favorable to the free and immediate contact with it (*aeratis*).

4. Consequently every porous body laid on the surface or in the depths of a wound should be regarded as a directly nocuous element.

5. If any extraordinary circumstances render the use of such bodies inevitable, it is of the last necessity to transform them, by means of certain procedures, into non-porous agents, endowing them in every case with energetic disinfecting properties.

6. Lint and other similar substances, as well as rags of all sorts, ought to be banished from hospitals, as deleterious dressing materials.

7. One of the fundamental rules of the treatment of wounds by the aeration method consists in seeking invariably, if anatomical conditions allow, cure by first intention. In all amputation wounds this rule is invariably necessary.

8. In order to attain healing by first intention, according to the rules of the aeration method, catgut should be used for the ligation of vessels and metallic sutures for the solid union of the wound.

9. In treating suppurating wounds, or granulating surfaces in general, it is important that granulations should be covered with an adequate layer of secretions, liquid or dried; in the contrary case it is useful to cover the surfaces with some semi-liquid substance (disinfected), or else to form a dry eschar with the aid of liquid caustic.

10. For the treatment of granulating cavities, as abscesses, fistules, etc., the cavity should, with the same purpose, conformably to the anatomical conditions, be filled with some mucilaginous liquid, either simple or with the addition of disinfectants.

11. The aeration method surely guarantees wounds against nosocomial infections and septic complications.

12. In banishing dressings, restricting to the last degree suppuration in the patient's ward, and thereby foci putrefaction, the method of aeration promises an essential amelioration of the sanitary conditions of hospitals in their constitution.

13. The reasonableness of the measures, the slight cost (*beau marché*) of the material (*utilage*), the facility of application and supervision, as well as the possible rapidity of the cure of patients, assures for our method of treatment a most brilliant future.

14. Now, in the presence of an impending war, physicians are seen everywhere teaching the care of the sick to all who desire to devote themselves to that sacred task of Christian mercy; it is specially to be desired that the knowledge of the new method, regarding which doubt is no longer possible, either respecting its practical application or the inevitable necessity of minutely adopting it, should be rapidly diffused; more particularly as its general precepts are so simple that it suffices, with a few explanatory words, to encourage the student in the wards of the wounded treated by this method to acquire a knowledge of the new procedures and of all that may be required of them."

On Antiseptic Dressing of Wounds.

Mr. JOHN CHIENE makes the following suggestions on this subject, in the Edinburgh *Medical Journal*, December, 1877 :—

First. To decrease the expenditure, three methods are available: first, to cheapen the gauze dressing; second, to use a cheaper material than gauze; third, to use a more durable material than gauze. The cost price of the charged gauze in the Edinburgh Infirmary wards is at present 2½d. a yard, and it is difficult to see how the cheapening process can go on much further. In order to obtain a cheaper material than gauze, I have, during the last two years, along with Mr. Gunn, in the laboratory of the Edinburgh Infirmary, been experimenting with different varieties of paper. Paper impregnated with carbolic acid, and with salts of carbolic acid, has been tried upon wounds in the clinical wards, but, at the present moment, I cannot say that I have yet obtained a paper dressing as efficient and cheaper than the antiseptic gauze. I hope, however, to continue these experiments during the ensuing winter, and to lay the results before the Society at some future time. Along with these experiments I have been using systematically, since 1875, sponges wrung out of 1 to 20 carbolic lotion, and applied over the deep dressing before the application of the outer dressing; by this means I have been enabled to lessen materially the quantity of gauze used at each dressing. I have further been enabled to dress the wounds less frequently than before. The sponges improve with use. If obtained at wholesale prices from dealers in sponges, and if small sponges are used, they can be obtained at a remarkably cheap rate. The authorities of the Royal Infirmary of this city obtained for me, for 3s. 6d., sixty small sponges weighing one pound. The smaller the sponges, the more easily they can be applied. These sponges may be stitched together, forming a layer; or they may be laid singly on the deep dressing, and held in position by the outer dressing. Before application the carbolic lotion must be squeezed from the sponge. The sponge is applied practically dry. The channels in it, by capillarity, suck up the fluid discharges; and if a catgut or horse hair drain is used, the sponge may be looked upon as a direct continuation of the

catgut or horse hair drain; or if an india-rubber drainage tube is used, the power of the sponge may be likened to the suction power of a syringe on drawing up the piston. It is evident, then, that the use of the sponge has other advantages beside decreasing the expenditure, and I would strongly recommend their systematic use in the antiseptic treatment of wounds. It is no uncommon thing to find that the spongy layer, acting as a reservoir, is so saturated with the discharge that the external gauze dressing is little altered, and I have frequently, in large recent wounds, squeezed from the sponge from six to ten ounces of dark-colored serum, which must, of necessity, if the sponges had not been used, either have remained in the wound, causing tension, or have passed into the gauze dressing, necessitating its removal at an earlier period. The sponges not only decrease the expense, but they lessen the risk, and save time and trouble by reducing to a minimum the dressings of the wound. They have another manifest advantage in cases in which bleeding is feared; the resiliency of the sponges enables the surgeon to apply firm pressure without injury.

Second. Is there any way in which the surgeon may dress his wounds without the constant aid of the spray producer? Mr. Lister long ago demonstrated that the spray is not required during the dressing of a superficial wound, as an ulcer. Can we in any way so alter the external conditions of our deep wounds that they will resemble a superficial wound? If this can be done, then the spray will not be required as long as these conditions are kept up. During the last two months I have attempted in several cases to comply with these conditions. My success has been such that I feel justified in stating the simple method adopted. The cases were a parotid tumor, an excision of an epitheliomatous tumor of the arm, an amputation of a great toe, and excision of the elbow joint. In these cases a permanent deep dressing was applied on the day after the operation, and fixed in position either with a bandage or with some sticky material, such as Canada balsam, or a solution of gutta percha in chloroform. From the experience I have had in these cases, I am of opinion that if the dressing is so arranged as to be perfectly porous, and if an absorbable method of drainage is used, as catgut, it will not be necessary to remove the deep dressing until the wound is superficial. As long as the deep dressing is in position the spray will not be required. All that is necessary is to remove the outer dressing when the discharge reaches its edges, to dampen with carbolic lotion and salicylic paste the deep dressing, and to apply anew an external dressing. It must be remembered that the deep dressing has lost its antiseptic qualities, while it remains, as long as it is covered by the outer dressing, perfectly aseptic. It must, therefore, be thoroughly damped with carbolic lotion whenever it is exposed to the atmosphere, in order to destroy any mischief that may have fallen upon it during the exposure, and in order to render it actively antiseptic, so that when the dry gauze dressing is applied over it, no mischief may pass from it through the deep dressing into the wound. The spray is used at the operation and at the first dressing, and afterward only when the deep dressing is removed. I have found, as yet, a gauze bandage the most suitable method of fixing the deep dressing on the limbs. This method is, therefore, available in all operations on the limbs. A bandage may also be used in many wounds of the trunk. In some, however, it cannot be satisfactorily applied, and some trustworthy adherent material has yet to be found which will fix accurately the edges of the deep dressing to the skin, leaving the centre of the dressing porous, so as to allow of the free escape of the discharges. This method has another advantage; it approaches more nearly to the perfection of healing by

"scabbing," and the wound is not irritated by the carbolic spray when exposed by the usual method.

The Employment of Continuous Baths in Surgical Cases.

We learn from the *Medical Times and Gazette* that to the *Wiener Med. Wochenschrift* (September 8th to 29th, 1877), Privat Docent Dr. HANS HEBRA contributes a paper reporting the results of the employment of continuous baths, first proposed by his father, Professor Hebra, fifteen years since. An old prejudice against prolonged continuance in a bath, and its employment just after meal times or during menstruation, had to be overcome. In order, too, that a man should remain for days, weeks, or months in a warm bath, the ordinary bath will not suffice, and a special apparatus had to be devised. Almost all baths are too short to admit of the patient's lying down, and they are so deep that the vapor of the water, which gets commingled with the air, interferes with respiration. The new apparatus allows of the patient's lying comfortably in the horizontal position, and so high as to be but little inconvenienced by the vapor. In such a "water bed" as this people find themselves quite comfortable, and when once accustomed to it, can sleep as well in it as in an ordinary bed. The appetite, fecal and urinary evacuations, remain normal, the respiration is not hurried, and the debility usually attributed to prolonged baths is not observable. During the first four or five days the whole surface, with the exception of a slight rising of the epidermis of the fingers and toes, undergoes no perceptible change. After that time there occurs in almost all, especially those who have much swelling of the feet, sharp pains in the plantar surface, which last for some days. For the alleviation of this suffering it suffices for the patient either to have placed under the soles of the feet a firm horse-hair pillow, against which he can press, or, if this is not enough, to have cushions placed under his feet, so as to keep them for some hours above the water. In individuals with a delicate skin, there are frequently produced, after they have been in the water a week or two, large broad patches of artificial papulary eczema, which are accompanied by great itching. Frictions with *oleum rusci*, while still remaining in the water, are always sufficient to cause the disappearance of this eruption. With the exception of this local result of the irritating effect of the water, no bad consequences have been observed. Among the many women for whom the bath has been employed, none were removed from it during the menstrual period, the water being found, indeed, to assuage their suffering. In no one of them did any disturbance of the functions of the sexual organs arise.

Since 1862 more than five hundred persons have been treated by these continuous tepid baths, so that a very strong opinion may be expressed as to their harmlessness. Of the early cases in which they were employed, sufficient notes were not taken to state the proportion of recoveries; but during his period of service as clinical assistant, Dr. Hebra had two hundred of these patients under his care, and is able to speak strongly in favor of the procedure. At the Vienna General Hospital a special place is devoted to this treatment, in which are set up seven of the apparatus, and the results of its employment are stated in the reports of that institution. Burns, in the third degree—a very fatal injury—constituted one hundred and twenty-seven of the two hundred and three cases treated, and of these fifty-six per cent. recovered. Among the other cases there were numerous examples of pemphigus and gangrenous bubo.

Conditions Increasing the Risks of Surgical Operation.

In a summary of what is known on this subject, Prof. THOS. R. BROWN, M.D., of Baltimore, says, in the Richmond and Louisville *Medical Journal*, April, 1878.

Perhaps among the worst conditions for bearing operations is old age; not so much as indicated by the number of years lived as by the tone and vigor of health. A man of forty, whose entire system of living has been antagonistic to the maintenance of a high standard of health and conducive to those same degenerations of tissue as are the result of old age, must be classed with the aged in estimating the dangers of an operation upon him. In both alike the presumptions favor their bearing the shock unsatisfactorily and their liability to hemorrhages, slow healings of wounds, etc. The frequent association of calcareous and atheromatous degenerations of heart and vessels with old age, or the condition which goes with it, constitutes the element of danger. As stated, their wounds heal slowly, seldom by the first intention, or what the results of Thiersch's inquiries would call the second intention. The old are intolerant of any wide variations in the swing of the great pendulum of life. The permissions to deviate are circumscribed, and all decided variations fraught with danger. Children, if the element of pain can be ruled out, bear operations well. If this is not disposed of, the danger of shock is increased, out of all proportion to what happens with the adult. The rapid manner with which a fatal shock occurred in a young child I was enabled to observe in a case of strangulated hernia, some years ago. There are many cases on record where the dressings of burns in children were attended with alarming symptoms of shock.

Then, again, those instances of pain that followed simple operations bear convincing evidence of this fact. Happily, we have a remedy, chloroform, or some other anæsthetic, at our command, which will rid us of this danger, and in the light of such experience I seldom induce much pain in a child unless there be such serious objection to the remedy as would forbid its use. To this end the prolongation of the influence of the anæsthetic by the aid of morphia is to be recommended. All efforts directed toward banishing terror, as well as pain, become substantial adjuncts to the operator's skill. He is a good surgeon who takes serious note of them. Pyæmia is of rare occurrence in children after operations, though it is said to be the common enemy we have to meet in cases of acute infantile necrosis. It can be met generally with success, as recovery is the rule. Like all those similar conditions in which the characteristic of pyrexia occurs with very young children, we seldom meet with distinct rigors. They are either entirely absent, are perceived as mere sensations of chilliness, or are substituted by convulsions. The mobile temperaments of children, and their highly wrought organizations, as chiefly denoted by their powers of repair, are of good use to them in making secondary hemorrhage, erysipelas, ugly suppurations, and the like, very uncommon, and in qualifying them to replace with considerable rapidity the lost blood. Here, as in every other period of life, our rule is to keep before us that the conservation of energy and the acquirement of a healthy reaction have an inverse ratio to the hemorrhage. "*Vita est in sanguine vita est sanguis ipsa.*"

The alleged ability of the depression of an operation to hasten the development of some disease remote from the seat of attack, and in some way connected with it, has long been entertained, and if correct, applies to both children and adults. Our records contain many instances in which this would seem to be so. The case of Mr. Smith, where a tubercular meningitis followed an excision of the hip joint; on the day following there was coma and convulsion, terminating in death within a week.

The great frequency of tubercular meningitis showing itself, as a rule, during the stage of surgical fever, would seem to imply an especial tendency to this disease. The popular superstition as to the risk of healing ulcers that have existed long is another case in point. The continuance of excellent health with the persistent discharge is offered to prove that they are coördinate. I am inclined to think that either the Pope himself, who had, as we know, for many years a running leg ulcer, or his physicians, endorsed this sentiment to the extent of not considering it discreet to interfere, lest an aggravation of the epileptic seizures ensue. For my own part, while I am prepared to admit that unsuspected, but none the less present, disease is often made manifest by the depressing influence of an operation, I am extremely skeptical as to the healing of an old ulcer being the means of establishing some independent affection. My own experience in the matter of fistula in ano, for example, occurring and treated by operation in cases of phthisis pulmonalis, exactly corresponds with that of Allingham. I could quote a number of cases, the majority of my operations, where the healing of the sinus, though slow, was followed with marked benefit, and the general health improved as the drain and irritation diminished. Those examples where the remote disease seemed to be aggravated by the cure of the fistula must be ranked with the exceptions. By all the records which I have examined, they are certainly in the minority. The apparent ability of an operation to bring to light in children some latent disease, was shown in a hare-lip operation upon an infant some time since. There succeeded to the operation great fretfulness and insomnia, followed by decided wasting and a diffused syphilide within a few days. In further comment upon the risks of operations in children, it must not be forgotten that the period of second dentition is not favorable.

True as it may be with regard to all those unfavorable issues of many of our operations, there is a long and comfortable list of diseases where the good attainable by interference is great. We are all familiar with cases of this kind. Those cases of urinary calculi, of urethral stricture with the pin-point contraction of the normal channel, of persisting necrosis with its exhausting suppurations and pain, especially if in a joint; and many other instances in which the relief by the operation required rises to its maximum, and the risk is reduced to its minimum. What splendid recoveries they make after the removal of a source of more or less constant irritation. The sense of anxiety gives place to one of contentment, and expression of pain, coupled with despair, surrenders to one of good cheer and hopefulness; the quick pulse of hectic and excitation is superseded by the calm circulation of convalescence; the capricious appetite is changed for an honest hunger; and everything, in short, marks the lifting of a great load from the patient and a change for the better.

While it is in some of those cases of prolonged suppuration where we encounter the amyloid degeneration before spoken of, I entertain little doubt that Mr. Marsh is correct in his claim, that a timely surgical operation before the pronounced structural lesions have become established will stop the progress of the disease and make the albuminuria disappear.

With reference to certain chronic constitutional diseases in their effects upon our operations, and in determining our selection of the particular method of operation, much of interest can be said. For instance, as pertinent to the latter point, take the case of stone in the bladder in Napoleon III, in which an almost indecent altercation arose between the physician and surgeon as to who was to blame for the fatal result. The operation in that case was lithotrity, in the face of what I believe to be a settled principle that, given a stone in the bladder, with the urine showing granular

casts, the surgeon assumes a very grave responsibility in substituting lithotrity for lithotomy. As to the other aspect of the question, as to where the blame rested for not having detected the disease of the kidneys, it is clear to my mind. While Sir William Gull, as a matter of professional thoroughness, ought to have ascertained the character of the urine, it was the duty of Sir Henry Thompson to have satisfied his own mind upon this urgent point. I contend that no sense of medical propriety should prevent a surgeon making use of anything that will in any way affect the results of his operation. Under the caption of "Constitutional Diseases," I include such as scrofula. Persons afflicted with this ailment are good subjects for operations. Their wounds are liable, to be sure, to indolent suppurations, and to assume the appearance of scrofulous ulcers; but, on the other hand, pyæmia, erysipelas, and the like, are rare with them; their recoveries are slow but sure. Concerning the mooted point of the propriety of moving the disease at one point lest it "break out" in another, there are enough cases published by most competent observers where such results followed, to compel us to admit that it is not altogether unreasonable. A case in point: A patient applies for relief from necrosis (scrofulous) of one of the toes; the toe is removed; after a time a similar disease attacks the knee, requiring amputation of the thigh; and this, in course of time, is followed by caries of the spine. The latter gets well of itself, apparently, and there is no recurrence. Such as these are the only risks which, as it occurs to me, we incur in operating upon the scrofulous, and they relate to the length of time consumed in the recovery solely.

Syphilis, provided it be not of unusual severity, as a rule, does not militate against an operation. Except in the negro race, where the low-cell tendency of a scrofulous taint is often engrafted upon the syphilitic, this disease would not contraindicate the use of the knife. Of course, under this head is not included the chancroid, all operations near which must be performed with great circumspection. In the case of the chancre it is different. No wound could heal more kindly, for example, than that which is made in its excision, an operation of very questionable propriety and use, performed by certain surgeons. The election by the syphilides of certain fresh cicatrices as their seat, by nodes and even necrosis in the tertiary stage of spots recently injured by blows, must suggest to the surgeon, however, that there are certain conditions where the wounds made by himself will incur the same risks. For these he must be on the watch. So far as my own experience extends, in the main, capital operations upon persons suffering from syphilis of average severity are recovered from about as fast as those in good health.

In cancer operations our results as to immediate recovery are excellent. The occasional selection of the line of the incision for the return of disease must not be lost sight of.

Gouty patients, who have not reached the period where the cardiac, renal and arterial degenerations have become established, are moderately good subjects for the operations. This is the experience of eminent authority, but for my own part I regard the gouty patient with disfavor; I have a misgiving about him. Besides, there must, I believe, be a big difference between the effects of a gout acquired by a long course of luxurious and riotous living and one that is hereditary, associated with prudence in the matter of food and drink. The former are very bad, and the latter, as instanced by those cases of urinary stone, most probably an expression, often, of the gouty heredity, are good.

Leaving the morbid constitutions, I must call your attention to another style of

patient whom we often meet, as by no means the best for surgery. I refer to the full-blooded, plethoric man. And here again we note a difference betwen the over-fed, over-fat and inert plethora and the plethora that is combined with a compactness of physique, tightly-fitting skin, whose life is movement, and full of energy and action. The latter class is much to be preferred. Of the former, Sir James Paget says: "The worst of this class are such as have soft, loose, flabby, yellow fat, and I think that you may know them by their bellies being pendulous, and more prominent than even their thick subcutaneous fat accounts for, for this shape tells of thick omental fat, and I suppose of defective portal circulation.

I know of no operations in which I more nearly despair of doing good than in those for umbilical hernia, or for compound fractures, in people that are over-fat after this fashion. Nothing short of the clearest evidence of necessity or of great probable good should lead you to advise cutting operations in people of this kind. Do lithotrity for them rather than lithotomy, incline against amputations for even bad compound fractures, and wherever you can, as, for instance, for cutaneous cysts, hemorrhoids and the smaller examples of scirrhous mammary cancers, use caustics rather than the ligature or knife.

The next division of my subject includes a notice of the intemperate in eating and drinking alcohol, especially the latter. In regard to the habitual drinker, whether he be the man of constant drunkenness, the man of sporadic sprees, or the man of habitual dependence upon grog—who thinks he needs stimulants before work; who cannot dine without his bitters; who sips his sherry, his brandy and water, at every turn, and contemns legitimate food; all alike are unfavorable guests of the surgeon. Their wounds heal slowly; they are our most likely victims to secondary hemorrhage, and make the after-treatment the most uncertain. It is, moreover, with this class of cases, during the period which follows the operation and the period of restraint, that attacks of mental aberration, the next of kin to mania-a-potu, set in. They lack tone; they are prone to pneumonia of a fatal type; to extensive suppurations and prolonged shock. Of all the specimens described, they are, perhaps, the worst which can fall into the hands of the surgeon.

As to the influence exerted by over-feeding, it is urged to be an objection only when the excess applies to the nitrogenous foods. Those who live almost exclusively upon meats, and use vegetables in moderate quantities, do less well after operations than those where the reverse obtains. This is the explanation, it is said, of the higher rate of mortality which occurs with those who enjoy the privileges of the higher and more generous civilizations of Europe, as compared with the inhabitants of India and other Eastern countries who subsist chiefly on vegetables. The proverbially large consumption of meats among our agriculturists is offered to explain the higher rate of mortality with them, as contrasted with a corresponding class in our cities. If such an expression can be used, it is, perhaps, because the former have too much health to successfully surrender suddenly a life of activity for one of complete inertia.

Lightning Stroke.

Dr. L. E. Starr read before the Medical Association of the State of Alabama, at Birmingham, in April, 1877, an interesting paper on this subject, and which subsequently appeared in the Cincinnati *Medical News*, January, 1878:—

As it has not been my fortune to witness, or to have seen anything similar in the literature of the subject, I propose to give a brief account of two cases that recently

came under my observation. On May 1st, 1875, I was summoned to see C. N. and N. N., brothers, laborers, who, while *en route* to church, halted under a small cedar tree, in an open place and about sixty yards from the residence of a freedman, to get shelter from an approaching shower of rain, N. N. leaning with his back against the tree, and C. N. standing very near, in front. In the course of a few minutes the electric fluid came down the tree, and from the violence of the shock they were prostrated and rendered insensible. In about ten minutes after the report made by the stroke of lightning, the inmates of the house near by heard a noise made by the injured parties, and went out and found them trying to get on their feet, though not sufficiently recovered to stand or to answer questions.

Dr. J. M. Williams, a retired physician, being near, reached the scene within half an hour, and administered brandy until reaction from the shock was established. In two hours after the accident I arrived, and found C. N., aged twenty-six, with a slight bruise over the right eye, the conjunctiva of which was considerably injected, and suffering intense pain in the head; some nausea and vomiting; pulse 80, rather feeble; patient rational. Morphia sulph., gr. ½, was administered, and he very soon became quiet, and remained so for eight hours, when he became restless, with his mind wandering, at which time I saw him again, and administered chloral hyd., gr. xij, every twenty minutes, until 36 grs. had been given, which gave perfect relief in a few minutes after the third dose, and procured a sleep of eight hours, after which he had no further trouble, except some dizziness of head, which he complained of after exercise, for thirty days.

Case 2.—N. N., aged twenty-two. It will be remember that N. N. was leaning with his back against the tree, in a standing posture, and would reasonably have received a greater shock. It would seem, from the statements of the patient, and the appearance of the tree and the patient's clothing, which was of heavy woolen goods, of home manufacture, that the electric fluid came down and split the bark of the tree immediately against the spine of the scapula of N. N., where a portion of it passed through his clothing, making a circular opening of about one and a quarter inches in diameter, which presented very much the appearance of that made by a musket ball, only it was larger. Passing through, it carried away the integument and the cellular tissue beneath, the depth of one-quarter of an inch, in an oval form, to the extent of two by one and a half inches. From four to six inches around this opening the cuticle was very much reddened, and in some small spots carried off, and in others blisters had formed. Passing down the lumbar region to the buttocks and posterior part of the thigh, all presented the same appearance as that surrounding the opening of the scapula; then passing down the left leg, making a small opening in the calf, and then destroying the integument and tissues from the tendo-achillis around the outside of the ankle joint to the instep, for six inches wide, bursting the shoe in pieces and making an opening over the tarso-metatarsal articulation of the small toe. Where the surface was carried away it presented the appearance as though it had been done with molten metal, so intense was the heat, yet the clothing was slightly burned; and although the laceration was so extensive in N. N., yet the shock to the nervous system was not so great as it was in the case of C. N., for reaction occurred much sooner. ½ grain sulph. morphia was administered, to relieve pain, and his wounds dressed with cotton-wool, moistened with treacle, and very soon he became quiet.

In this case there was considerable difficulty in deglutition; in attempting to swallow fluids they would gush out of the nose. It is worthy of note that this patient

had been troubled for eight years with polypus of the nose, which came away the third day after the accident. Chloral hyd. was administered in xij-grain doses sufficiently often to keep the patient quiet, and his wounds, after the first dressing was removed, on the second day, were treated with solutions of carbolic acid until the sloughs came off, and the resulting ulcers treated with tannic acid, one ounce, water, four ounces. This mixture protected the surface perfectly from the air, and from excoriation, by forming a thick crust, under which granulations rapidly sprung up, and where the ulcers were not deep the surface was entirely healed when the first crust came off. I have long been in the habit of using this mixture in the treatment of ulcers, and especially those following burns. After suppuration was established, tonics, brandy, and nourishing diet were relied on to keep up the strength of the patient.

All the wounds sloughed readily and did well, except the one on the ankle, which moved very slowly, in consequence of the nature of the tissues involved, but after the twelfth day it began to loosen, and a superficial slough came off, but a deep one still adhered. On the fifteenth day it began also to loosen, and on the eighteenth day the posterior peroneal artery was severed, with but little loss of blood. It was feared, almost from the beginning, that the leg would be lost, but it was thought best, as the patient was holding up well, that every attempt possible should be made to save it; but after the deep slough began to loosen, it was ascertained that the fibula was blackened at its inferior extremity, and by the suppuration up its track it was almost certain that it had lost its vitality throughout its whole extent. Then amputation was decided on and consultation sent for, but owing to some unavoidable accidents the consulting physicians did not get in for two days, which time had produced considerable difference in the appearance of the case; but on the fortieth day from the receipt of the injury Drs. Crawford and Davis, of Centreville, saw the case in consultation with me, and by this time it was deemed necessary—as the inflammation had extended above the knee—to amputate at the middle third of the femur, which was done, Dr. Crawford operating.

Reaction after operation took place slowly, but was finally established, and the patient made a good recovery, with no other inconvenience save the loss of the limb.

Some six months after the operation was performed the limb was disinterred, and upon examination it was discovered that the fibula was black through its entire extent.

The Employment of Massage.

Dr. David Prince says, in the *American Practitioner*, February, 1878—

Massage is now adopted as an arbitrary word, signifying friction, stroking, kneading, tapping, rolling, pinching, and passive movements, whether done with the patient awake or under ether; executed by the hand or by machinery; light in degree or carried to the extent of rupturing adhesions and elongating contracted muscles by short vibratory movements.

The principles are old, though the word employed to comprehend them is modern. The employment of friction by the hand is a domestic procedure, in pains and cramps, so ancient and so universal as scarcely to be mentioned in systematic writings.

Friction is made by a rapid movement with light pressure, intended to develop heat in a part whose circulation is torpid from external cold or from internal causes; and when done by machinery, the presence of flannel or silk between the friction

pad or brush and the skin, may be supposed to develop a static electric excitation favorable to the restoration of the function of impaired nerves. The efficient employment of friction by the hand is very tiresome, and when employed in a systematic way to improve a chronic condition a machine is almost indispensable.

Stroking is a combination of friction and pressure, generally secured by a movement of the hand in the direction of the cutaneous hairs. This method of massage is especially applicable to the back and to the voluminous portions of the extremities. If it is intended to give prominence to the element of friction, the hand of the masseur is either dry, or wet with alcohol, or some other penetrating or quickly evaporating liquid; but if pressure is intended to be predominant, the hand is lubricated with some oleaginous substance, which enables it to glide with the least resistance. As the hand passes slowly over the parts operated upon, a wave is produced, which secures an alternate emptying and filling of the vessels of the stagnant organs. The influence of this method is felt not only in the parts subjected to immediate pressure, but in the adjacent organs. This is illustrated by the relief of stroking in lumbago and other forms of backache, in which the area of the comfort is more extensive than that of the application.

The process of kneading is the production of a pressure by the application of the hand or the closed fist, without gliding, and in a gentle manner, over a portion of the body in alternation, as a baker kneads his dough.

Tapping is best secured by machinery, as it is very fatiguing to keep up a sufficient prolongation of rapid and light touches by the hand. Rolling, however, being a slower proceeding, is easily effected by the hand. Pinching between thumb and fingers is generally employed for the purpose of securing reflex action.

The various passive movements may be executed by the hand, but they are more regularly and efficiently produced by machinery. The latter can be moved by a stupid person, by steam or by a water motor, leaving the operator free to guide the machine without fatigue, and thus to secure the full benefit of the application or the remedy. While it is possible to do by hand nearly all that can be done by machinery, it is safe to say that the use of the hand involves too much fatigue for general and faithful employment. Rapid vibrations or oscillations are beyond the power of the hand to accomplish. The acceleration of motion effected by machinery is necessary to a satisfactory result. The passive movements require skill when performed by the hand. The manipulation of the fingers, especially the stroking and kneading processes, can best be done by the hand of the operator. The movements of the fingers in the direction of flexion and extension, are best done by machinery. The rapid oscillations, which are found of greatest benefit, cannot be accomplished by the unaided hand.

The benefit seems to be derived from the acceleration of vital changes, similar to those which follow active exercise with those who are able to take it. A limb, useless through fancy, rigidity or palsy, has its tissues shaken by short and rapid vibrations, and there comes a more voluminous supply of blood, and a more responsive or a more equable innervation.

The most important applications of massage can be secured by the machine represented in the accompanying wood-cut.

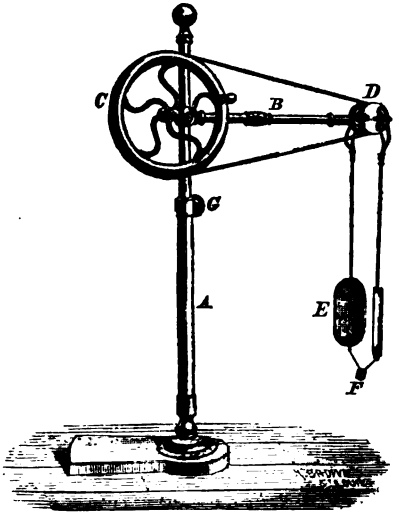
A vibratory attachment, for hand or foot, is also run by the small wheel which carries the friction-pads, the latter being detached and laid aside.

The *Manipulator*, a machine for massage, invented by Dr. George H. Taylor, of New York, and manufactured by Wood and Co., No. 17 East Fifty-eighth street, is

a machine of very varied adaptation. It is capable of being run by hand, and of accomplishing most of the work capable of being done by extensive machinery requiring steam power.

The introduction of machinery marks a new era in the employment of this therapeutic agent.

In a large portion of the chronic disabilities of the extremities, a contraction of the arteries is a marked condition. The supply of heat becomes insufficient to resist the temperature; new material is not readily laid down to take the place of that which is effete; hence, there is emaciation of muscles, of vessels and of connective tissue. The diminution of volume and the density of the structure of the connective tissue result in stiffening of the joints, the surrounding loose tissue acquiring the hardness of natural ligament, in some instances resisting with more force than the strength of the adjoining bones, which latter become emaciated in substance though not diminished in size, through the same lack of supply of nutritive material. The nerves share in the atrophy of the connective tissue, the medulla becomes compressed, resulting in hyperæsthesia with diminution of proper function. Sometimes anæsthesia occurs, and between these extremes are various forms of perverted sensation. The motor function exhibits an equal variety of failures and perversions on a lower level of nutrition than that which gives it its natural trophic action. The skin shares in the same atrophy, its arteries diminishing and its veins becoming obliterated, the surface acquiring the appearance of cicatricial substance with a shining aspect.



(*A*). A stand, capable of being lengthened, so as to control the height of the working portion of the apparatus.
(*B*). Horizontal shaft, capable of being lengthened so as to keep the band tight.
(*C*). Wheel propelling the band which carries the small wheel.
(*D*). The wheel which moves two friction pads.
(*E*). Pads with wood foundation and leather-covered cushioning. In operation, these pads are covered by some fabric capable of being washed. One pad may be used alone, or it may be substituted by a brush.
(*F*). An elastic rubber connection for controlling the position and relation of the pads.
(*G*). A set screw, to hold the working part of the machine at a proper height.

This assemblage of conditions may be peripheral, or the sequel of an injury, or other local cause, on the one hand; or, on the other hand, central, the result of changes in the nervous centres, in consequence of which the arteries are made to contract under the irritation conveyed through the nervous distribution.

The arterial and the nervous systems react upon each other, the diminution of arterial blood lessening the nutrition of the nerves, and the consequent perversion of the nervous function inducing an increased contraction of the arteries. The influence of defective supply of arterial blood is illustrated by what is said of some devotees in India, who carry an arm elevated and deprived of its proper movements for a long time. The ascent of the blood in the arteries is retarded by the force of gravity, and its descent in the veins is favored, so that the limb emaciates and stiffens. The same result, in a minor degree, occurs as an incident to the treatment of diseases and injuries in which immobility and an elevated posture are preserved for many weeks. In these cases the increased accumulation of blood attending the dependent posture

becomes painful, and the diminished capacity of the capillaries to transmit the blood, and of the veins to return it, result in the effusion of serum, producing swelling and pitting, which are slow in being removed.

The recovery in such cases is generally greatly retarded by the unwillingness of the patient to submit to the pain attending the dependent posture, and the movements, the pressures, and the frictions, which should be employed to induce a better vascular supply. The heat and cold alternations by bathing, the atmospheric exhaustion or cupping, and the electric excitations, are all painful, except in those conditions in which there is palsy of sensation of a durable nature. This explains the reason why so much advantage results from the occasional etherization of a patient whose fortitude is not equal to the emergency.

The treatment of diseases of this class is the opposite to that adapted to conditions of an inflammatory nature. In this latter condition the arteries are dilated, permitting too much blood to flow. Here the elevated posture, rest and arterial sedatives are appropriate, while in the former condition all modes of activity are useful.

Surgical Uses of Carbolic Acid, with Special Reference to its Value when Associated with Lime Water.

Dr. L. H. A. NICKERSON, of Quincy, Ill., read before the Adams County Medical Society, February 11th, 1878, a paper upon this subject, appearing in the *American Medical Bi-Weekly*, March 16th, 1878, in which he gives the following cases:—

CASE 1.—Epididymitis, complicated with urinary fistula; parts very sensitive and patient highly nervous. The scrotum was painted thoroughly with the solid stick of pure nitrate of silver, giving a great deal of pain while handling, and in a few minutes it increased until it was of the most severe character, causing him to leave his bed and roll on the floor, using the most profane language and asking most piteously if there was no relief.

The scrotum was painted at 11 A.M., and I was at his side until 1 P.M., trying all the remedies I could grasp, such as olive oil, linseed oil and lime water, ice, hot and cold water, and a solution of morphia (two grains to the ounce). Internally, three-fourths of a grain of morphia, twenty grains of chloral, thirty grains of bromide of potassium, and as the pain seemed to be increasing, placed him under the influence of chloroform for some time, but on returning to consciousness the pain also returned. Then, as a culminating point (with doubt as to its value), applied a solution of carbolic acid and lime water, the proportion being two drops of the acid to the ounce of lime water, having been in the habit of using this remedy with honey, in pharyngitis, with good effect. It worked like magic, giving instant relief. The patient was astonished to be relieved so quickly, and asked in blank astonishment why it was not applied before. He immediately eat his dinner and then took a quiet nap, with no return of pain.

CASE 2.—A large phagedenic chancroid, just within the vulva, occupying nearly all of the labia majora and minora of the right side, back to the fourchette, and extending up on the left labia majora and minora. Applied nitric acid thoroughly with a small sponge; gave the most intense pain, which was relieved instantly with the carbolic-acid solution. A week afterward the parts were healthy and healing rapidly.

CASE 3.—George V., circumcision having been performed the week preceding, the

stitches having given way and the wound looking very unhealthy and foul, a solution of sulphate of copper (two grains to the ounce) as a wash was ordered, and two hours after its first application found him suffering intensely, and, with large tears in his eyes, he said, "dat blue stone was killing me." The carbolic acid solution gave instant relief.

CASE 4.—Exuberant and granulating bubo; scraped with the bistoury, then applied caustic potassa; gave considerable pain. Carbolic acid solution gave instant relief and no return.

CASE 5.—Chancroid at side of frænum, on the prepuce. Applied the liq. hydrarg. nit., the pain being relieved in a few seconds by the carbolic-acid solution. The following day a slough came away and the patient made a rapid recovery.

CASE 6.—Retroflexed uterus with cervical endometritis. The application of nitrate of silver always caused a great deal of pain, which lasted for some time. Applied the solid stick to the canal, which was followed by a great deal of pain and relieved by the carbolic-acid solution and no return of it. This is the only case I have seen it used in this form of disease, and should like to hear of its being further tested.

CASE 7.—Excoriation on the side of prepuce, caused by gonorrhœa and irritation of the clothing, the ulcer looking very unhealthy and foul; painted it over with nitrate of silver, causing the most intense pain, the patient saying he could not stand it and would have to get out of bed. As soon as it was touched with the caustic, lime water was applied freely, but the pain seemed on the increase. Was instantly relieved by the carbolic acid solution, the patient saying he felt better than he had all the day. Only about one-half teaspoonful of the solution was used, by dropping it on the surface.

CASE 8.—Chancroid at base of glans, of about half an inch in diameter. Cauterized freely with nitric acid and immediately applied a solution of carbolic acid and water (two drops to the ounce) without any positive effect. He remained in great pain for four and a half minutes, when the carbolic acid and lime-water solution was applied with immediate relief. As he had a tendency to phimosis, ordered the solution as an injection under the prepuce.

CASE 9.—Gonorrhœal ophthalmia of a few days' standing, ulceration of the cornea having begun. Applied a solution of nitrate of silver (sixty grains to the ounce) freely, causing intense pain. The solution of carbolic acid and lime water gave no relief, but at first seemed to increase it, when the pain gradually died away.

CASES 10 and 11.—Two cases of epididymitis, resulting from gonorrhœa, in which the solid stick of nitrate of silver was thoroughly applied to the scrotum, in one of which it gave intense and in the other moderate pain, and upon the solution being applied, at first greatly increased it, and in two or three minutes diminished, and in a little while it returned with the same violence, and continued in this way until the pain died out. Upon inquiry at the drug store, I found that the pure crystals of carbolic acid were used in these three last cases; or, in other words, the crystals of phenol made liquid by the addition of a little water. Remember the action here where the crystals of phenol were used.

CASE 12.—A large ringworm or herpes circinatus, as large as the palm of the hand, on the front of the cheek. On one side of the ring was applied a solution of crude carbolic acid and lime water, which acid contained the phenol and cresol, and to the other side a solution of the crystals of phenol and lime water. The first half of the circle was entirely well in a few days, while the half where the pure crystals were used just began to fade.

The above experiments are conclusive and positive, as these cases have been taken from many, all giving the same results, and they are not hypotheses, but the results are facts; but to get the direct effect, be cautious as to the acid you use and the quality of the lime water. Dr. Squibb, of Brooklyn, has shown that phenol has comparatively little effect on the lower form of animal and vegetable life, compared with cresol, and that the taste of the latter is at least five to ten times as great as the former, and I will add that my experience has led me to place cresol far superior to phenol as a local anæsthetic.

Now, all of these effects, I wish to state emphatically, are greatly increased by the addition of lime water, which seems to carry the acid into direct contact with the vital organs. Besides using this preparation as a local anæsthetic, I have found it useful in burns, scalds, gonorrhœa, etc., and in diphtheria it is the best remedy I know of when used freely and often, as a gargle, and can speak of it in the same terms in skin affections, especially if accompanied with pruritus, a good addition being one ounce of glycerin to the pint, and if the odor should be disagreeable, can use a few drops of the oil of rose.

New Treatment of Lumbar Abscess.

Mr. Osman Vincent, of the Orthopedic Hospital, London, says, in the *Medical Press and Circular*, December 26th, 1877:—

I have now had eighteen cases of lumbar abscess treated by injection of sulphurous acid, all of which have been successful, some, of course, more so than others, but in every case has the abscess been cured, the body of the diseased vertebræ become consolidated, and the patient able to perform the principal duties of life without detriment to himself, or a recurrence of the disease.

Of these eighteen I have selected two cases to illustrate the treatment:—

Case 1.—October 14th, 1872. A. C., a boy, aged eight, has had angular disease for three years, and been allowed to walk about, wearing a support; there is marked deformity, but no pain, the greatest prominence being over the middle dorsal vertebræ. In the right loin is a fluctuating swelling the size of a small orange, almost pointing. The general health enfeebled.

The next day, October 15th, I opened the abscess, and let out four ounces of healthy pus, injecting immediately one ounce of sulphurous acid, and one of water, mixed, and allowing the fluid to remain in the sac for a few seconds.

The operation caused no pain, nor was it followed by any feverish symptoms. The wound was kept open by a strip of lint, and a linseed poultice placed over the part. Strict recumbency ordered, and a light, nourishing diet.

The following day the injection was repeated, the same proportion being used, and the part being covered with tenax instead of the poultice.

This treatment was continued for a week, when it was obliged to be stopped, as the skin around the incision suppurated. The slough, however, was soon removed by poulticing, and the injection and tenax again used daily.

October 27th. From this date until the 24th of December the injection was used almost daily, until the discharge became very trivial, and on December 24th the wound quite healed.

Ten days after, I saw him; there was no return of the abscess, no pain, and no constitutional disturbance. There was much more consolidation in the borders of the diseased vertebræ, and after another six weeks' recumbency, I allowed him to

get up, with his instrument, and I heard soon afterward he went to school, and was able to play like the rest of the boys.

No bad symptom of any kind followed this operation, but the boy died three years after, of pneumonia.

No post-mortem was allowed, so I was unable to discover the pathological changes that had taken place.

CASE 2.—February, 1876. Alfred T., aged thirty, merchant. Had angular disease in childhood, not much deformity, fair amount of consolidation. Scars of abscess in both groins.

Three months previously had great pain in the back, and noticed a lump in both loins. He consulted a well-known orthopedist, who ordered a support and tonics. He wore the instrument twice, and then getting so much worse took to his bed, and was attended by a local practitioner. The lumps were poulticed until that in the left lumbar region broke and discharged copiously. A month after, I saw him, and found him greatly pulled down and debilitated, with a large abscess in the right loin, some prominence of the middle dorsal vertebræ, and a sinus discharging in the left loin. As he lived some distance away, I persuaded him to come into the National Orthopedic Hospital, where I could see him every day.

The day after his admission I freely opened the abscess in the right loin, and evacuated fourteen ounces of healthy pus, and then well washed out the sac with equal parts of sulphurous acid and water.

This caused him great pain, so much so, that he almost fainted. The part was dressed with tenax, and the patient ordered to lie on his right side, that the discharge might drain away easily.

He was ordered a liberal diet and port wine. The next day there was no febrile disturbance, and the operation was repeated, this time without pain.

Three days after this the sinus healed, and after twenty-six days, the discharge from the abscess being *nil*, the injection was discontinued. The wound soon healed, and at the end of two months he went to Margate, wearing the support previously ordered him. Three months after, he resumed his business, and a few days ago I saw him, just twenty months after the operation, and he was perfectly well, locally and generally.

The notes of the other sixteen cases are very much of the same character, the only difference being in the amount of pain caused by the injection, which in some cases was severe, and in others trifling or altogether absent, and the slight character of the constitutional disturbance, which was often absent altogether. There is one point that I should like to ask the opinion of the meeting upon, and that is, that, as a rule, though the injection went in white or colorless, it came out black; and this was the more apparent in those cases that succeeded best, and I have never been able to give a good reason for this change.

I may be asked, why open to the air a large cavity like a lumbar abscess, and run the risk of many evils, when the aspirator is at hand. I answer, that although we can draw off the pus by that means, we cannot prevent its reformation; and that the sulphurous acid acts on the pyogenic membrane in such a manner as to prevent formation of pus, and if strict recumbency is made an essential part of the treatment, there is no reason to fear that this dreaded, but if taken in time, avoidable, complication of angular disease may, by this treatment, be shorn of much, if not all, its previous destructiveness.

Observations on Spina Ventosa.

In a monograph on this disease, published at Paris, last year, by EDOUARD GOETZ, he gives his conclusions to the following effect:—

1. The term spina ventosa ought to be used only as the name of one disease—that which I have described as occurring in the long bones of the foot and hand in scrofulous children.

2. The anatomical lesion of spina ventosa, thus defined, is a chronic osteomyelitis; the change in the medullary tissue is primitive (fungous degeneration); that in the bone is secondary; and the alteration in the periosteum (chronic periostitis) is a consequence of the two preceding alterations.

3. Spina ventosa is an affection purely of the body of the bone, there being very seldom any lesion of the epiphyses or articulating surfaces.

4. Scrofula in all its degrees is, so to speak, the one cause of spina ventosa. The immediate causes of the malady are obscure.

5. There are two periods in the progress of spina ventosa; first, indolent ulceration, without any alteration of the skin; second, ulceration of the skin, followed by the issue of a fungous substance from the medullary canal.

6. The diagnosis of spina ventosa has to be made between it and chilblains, dactylion (strumous or syphilitic) enchondroma of the fingers, exostoses, caries and white swelling of the metacarpal and phalangeal articulations.

7. Cure is the most frequent termination of spina ventosa. Sometimes, however, the affected bone becomes necrosed, and then the morbid changes extend to neighboring parts.

8. In every case medical treatment ought to be tried, and continued for a long time. Removal of the fingers ought only to be proposed as a last resource, and after a conservative attempt has been made by sub-periosteal resection of the diseased bone.

A Case of Spina Bifida Successfully Treated by Injection of Iodine.

Mr. A PEARCE GOULD read notes of this case before the Clinical Society of London, in January last. The patient was born with a tumor of the size of a hen's egg, situated over the last lumbar and upper sacral vertebræ; this slowly increased in size, while the skin over it thinned. When eighteen months old, he was brought to the Hospital for Sick Children. The tumor was then of the size of a cricket ball, sessile, with all the usual characters of spina bifida; an opaque band was seen along the middle line of the lower three-fourths of the tumor. There was no paralysis or other deformity. The head was large; the fontanelle was widely open, becoming bulged when the tumor was compressed. September 18th, 1877, the tumor was tapped with a small hydrocele trocar at the upper part, just to one side of the middle line; six drachms of fluid were removed, and half a drachm of Morton's iodo-glycerine solution was injected, the opening being closed with collodion. For the first few days, all promised well; the tumor appeared to be firmer, smaller, and less translucent; but at the end of a fortnight it had returned to its former condition. October 5th, the operation was repeated, one drachm of the iodine solution being injected. But this was attended with the same result. On November 5th, it was injected for the third time, two ounces and a half of fluid being removed, and two drachms of the solution injected. The sac became very tense, red, hot and tender; fluctuation persisted for a week, but on the ninth day a marked change was noted; the tumor was smaller, flaccid, elastic, but not fluctuating, and it did not become

tense when the child cried. The wall of the sac became gradually firmer and thicker, and the tumor shrank. On December 14th, there being still distinct fluctuation in the now thickened cyst, it was again tapped and emptied by the removal of six drachms of a yellow, viscid, highly albuminous fluid; it was evident that the communication with the spinal canal was completely obliterated. One drachm of the iodine solution was injected into the sac, and well manipulated, and then allowed to escape. The tumor had since then gradually shrunk, and now presented a thick pad of skin, quite dense at the lower part, softer above, where there was a small spot which still fluctuated; from this Mr. Gould withdrew about half a drachm of yellow, turbid fluid, two days ago. There was no paralysis. The fontanelle was closing up. After each operation, the temperature rose to 101° to 102.8°, and continued above the normal from two to six days; there was no convulsion or other sign of interference with the nervous system. The after treatment consisted in thickly smearing the tumor with collodion each morning, and supporting it with wool and a bandage. The tumor evidently communicated very freely with the spinal canal, and most probably contained the spinal cord or nerves. Mr. Gould had examined twenty-three specimens of spina bifida, and had found nerves in the sac twenty times, two cases in which they were absent, and one case in which their presence was doubtful. The nerves or cord generally occupied the middle line, the position of the opaque band seen in this case. The absence of paralytic symptoms by no means favored the opposite view. The fluid removed at the first three operations was colorless, becoming slightly turbid on standing, of specific gravity 1.011, faintly alkaline, containing a trace of albumen, chlorides and phosphates. With Fehling's copper solution it gave no reaction; but Dr. Dupré analyzed it, and after concentration was able to get distinct evidence of the presence of sugar. Because sugar cannot be detected in the fluid of spina bifida, and in that escaping from the skull in cases of fracture, it must not, therefore, be supposed to be absent, unless the tests be applied to the fluid after evaporation. Dr. Morton's treatment had now been employed several times; and in twelve out of fifteen published cases with success. As to the value of the glycerin, Mr. Gould stated that on pouring some of the "iodo-glycerin" on some of the cerebro-spinal fluid in a narrow glass, it was found to sink to the bottom at once and not to mix with it; and he was of opinion that the same thing occurred in injecting the tumor, for the fluid that oozed from the puncture after the injection was quite unstained with iodine, and the action of the injection had been much more potent at the lower part of the sac. Although the mode of cure resembled that seen in the radical treatment of hydrocele, there was an important difference in the two conditions, the one being a closed sac, the other communicating with a canal full of fluid. As to the fear that the inflammatory material would press injuriously on the contained nervous material, it was noted that in none of the published cases had consecutive paralysis been noted, and a specimen of Sir A. Cooper's, in St. Thomas' Hospital Museum, described in his paper, in vol. II of the *Medico-Chirurgical Transactions*, showed that the radical cure might take place in this way when the cord was in the sac, without nervous symptoms. Mr. Gould had considerable difficulty in stopping the oozing of the cerebro-spinal fluid, which was so dangerous if allowed to continue.

The Acetic Acid Treatment of Cancer.

In the *Zeitschrift für Chirurgie*, January, 1878, Dr. Geiss reports the case of a man, sixty-two years of age, who was attacked by a carcinoma of the left horizontal

part of the inferior maxilla. Some years before an indurated kernel had been excised from his lower lip. Soon after the operation he complained of lancinating pains in the tongue. The cause was found to be a cancerous abscess, developed in the left half of this organ, near the epiglottis. This new formation was likewise extirpated; to accomplish it, it was necessary to tie, beforehand, the lingual artery and to divide the maxilla. After seven months two other tumors showed themselves—one, small and indurated, on the lower border of the left maxilla; the other, larger and softer, more toward the front of the neck; the last shrank under the influence of applications of ice; the first remained stationary. A year after the extirpation of the tongue there appeared, in the neighborhood of the right submaxillary gland, another tumor of rapid growth, which resisted the ice treatment. This tumor was likewise a cancer, a microscopic examination being made of a piece extracted by the small harpoon. Into this Dr. Geiss injected, daily, for a week, acetic acid by means of a Pravaz syringe. The first injection was of the strength of two in nine, afterward it was raised to one in three. Each time the injection was made by a single opening in the skin, but the syringe was turned in several directions, so that the contents of the syringe might traverse a large extent of the tumor. A sharp inflammation followed. On the tenth day a deep incision was made by a bistoury, and a drainage tube introduced, giving vent to a very fetid, sanious fluid. At the end of seventeen days the suppuration ceased, and there remained only a kernel about the size of a walnut. Soon afterward four injections were made in the small tumor, on the border of the maxilla, and in a new one which had become developed in the cheek. A fresh tumor took its rise behind the left ear; it became the size of a hen's egg, very hard, and the microscopic examination showed a fibrocellular stroma, as in the first. Injections were employed, and the author injected every day, with two or three syringes, so that in eleven days twenty-five syringefuls of acetic-acid solution were used. The first set of injections had provoked no pain; these, on the contrary, were very painful, and were followed by an abundant suppuration, which lasted three weeks, and the tumor completely disappeared. Like success was obtained in the case of a lady who had a cancerous tumor of the breast, the size of a hen's egg, and who would not submit to have it excised. For ten days injections were made; on the eleventh day it was incised. The suppuration ceased at the end of fifteen days, and in four weeks' time there was only a kernal the size of a nut. The author believes that these injections of concentrated acetic acid will at least hinder the rapid development of many forms of malignant disease, and, in some cases, effect a radical cure.

Treatment of Cancer of the Breast.

Dr. Z. H. Evans, of Lodi, Ohio, says, in the Toledo *Medical and Surgical Journal*, April, 1878—

My early teaching from preceptor and professors (men of considerable reputation among the profession of this country, at least), in regard to the treatment of cancerous disease of the breast, was to use the knife, and thus, if possible, secure union by first intention. I heartily endorse this strenuously advocated mode of treatment, provided the surgeon could always be assured of having extirpated every germ of cancerous growth; but since he can never indulge in this happy assurance, I have, for certain, to me, at least, plausible reasons, departed from the generally accepted mode of treatment. As a result of my observation and experience, I am decidedly in favor of the following mode of procedure:

First. In the original operation, whether by caustic or by knife, go fairly beyond the supposed limits of the diseased tissues. (My preference in first operations has always been in favor of the knife, the state of the patient's health permitting.)

Second. After the initiatory operation, I adopt the free use of the supersulphate of zinc as recommended by Prof. Tanner, in his work on "Practice of Medicine," for two reasons, viz.: First, to arrest hemorrhage; and, secondly, to destroy any remaining diseased tissues that have escaped the knife. Although I am aware that the majority of the profession endorses Velpeau, when he says: "The use of caustics neither requires a knowledge of anatomy or operative surgery," yet I, for one, am decidedly in favor of their employment in cancerous deposits of the breast. The arguments, as they present themselves to me, in favor of treatment by open wound are: First. In unusually large tumors, the utter impracticability of securing union by first intention, and the feasibility of the removal by this method. Second. Avoidance of the pressure which is necessitated by the ordinary method of securing union. Third. Avoidance of septicæmia, by allowing free exit of pus. Fourth. The opportunity afforded the surgeon of observing the degree of success attending the operation, as regards the removal of cancerous material, and to remedy any defective results.

I have for the last five years adopted this method of treatment in preference to any other that I have seen advocated by our surgical authors. Have for the past five years treated twelve cases of cancer of the breast by the method here advocated, and I have yet to see or hear of a case where the disease returned.

By this evidence I am led to believe that cancer is not at all times constitutional, and invite the attention of the profession to this method of treatment, and ask them to make trial of it and report their results.

The Treatment of Cancer by Pressure.

The *Lancet*, April 7th, says:—

M. Bouchut has recently introduced to the notice of the members of the Académie des Sciences a cuirasse of vulcanized caoutchouc, which he has used with success for the treatment of cancerous and other tumors of the breast. In this country there has been much division of opinion upon the utility of pressure in the treatment of cancer, some surgeons regarding it as harmful, or but rarely useful, others attributing to it great retardation of the rapidity of growth of the tumor, or even cure. The surgeons of Middlesex Hospital studied it systematically some years ago, and gave an unfavorable report. The theory of the plan is certainly good; a neoplasia, like a healthy tissue, is dependent upon its blood supply for vitality and growth, and complete anæmia causes the death of a tumor, as it does of a patch of brain substance. It will be remembered that Mr. Haward last year related, at the Clinical Society, a case in point. He ligatured the left lingual artery for a recurrent epithelioma of the tongue; the tumor sloughed away, and a fortnight before the patient's death from blood poisoning, the tongue was quite healed. In just the same way ischæmia will impair the vitality and so lessen the growth of the tumor. The difficulty is rather in the practical application of this theory. The knowledge which we now possess of the mode of growth of cancers gives us at least one important indication. If we have to deal with a neoplasia that grows at the periphery, by gradual infiltration of the surrounding tissues, it is plain that, for pressure to be useful, it must be applied around the tumor rather than over it, where, by compressing and obstructing the capillaries, it would cause over-fullness of those at the circum-

ference. It is the periphery of a cancer that is its active part, and we must, therefore, produce ischæmia *around* and not *in* the tumor. In the application of the treatment this must be obtained by the careful adjustment of elastic pads of cotton wool, and as the whole success of the plan depends upon the skill with which this is done, too much attention cannot be given to it. We cannot regard pressure as a substitute for removal of a cancer; but in the frequent cases where this is impracticable, it appears to be the best substitute at present open to the surgeon. M. Bouchut's cuirasse would seem to be an improvement upon the spring pads and other appliances in use in this country.

On Operating for Cancer.

On this topic Dr. W. W. DAWSON says, in the Cincinnati *Lancet and Observer*, January, 1878—

It cannot be denied that there is in some instances a true cancerous cachexia, and that the disease is occasionally hereditary, but these facts do not prove that it is always constitutional, always primarily in the blood. Allow me to state a few significant points, and I beg, gentlemen, your close attention to them.

1. A recurrence does not prove that a disease is in the system, for we find this disposition to return in a certain class of fibroids that have never been suspicioned of originating in the blood.

2. In a great number of cases scirrhus of the breast is traced directly to a blow upon the organ. Previously, the woman had been in robust health, yet a malignant tumor followed a slight trauma. Cancer of the lip is often traced directly to irritation of the pipe stem.

3. After removal, in fact, often during the course of the disease, the general health of the patient is good.

4. When the disease returns, it is usually in the cicatrix or in its neighborhood.

5. A cancerous tumor may exist for years and no dyscrasia be manifested.

6. The truly impressive fact that after the excision of unquestioned cancerous tumors patients have lived for years in a state of *positive health.*

7. Virchow teaches that, in many cases, cancer is of local origin, and the researches of pathologists of the present day tend to the verification of the views of this great and original investigator.

Assuming, then, with Billroth, Virchow and others, that scirrhus of the breast is for a time, at least, in numerous cases, local, we may well inquire why the operation for its removal has been so unfortunate, why the disease has so frequently returned?

Three reasons may be stated: (1) the operation is not performed sufficiently early, while the disease is essentially confined to the gland, before the "passage of elements from the tumor, whether of cells or juice, through the lymphatic vessels and veins, into the blood." (2) The faulty plan of removing only the tumor, not excising the unaffected part of the gland and the neighboring fat, in both of which there may be out-liers of malignant matter not perceptible to the eye. Upon this subject Sir James Paget says, "The existence of cancer cells infiltrated among the tissues which surround the actual cancerous tumor, and which to the naked eye may appear to be perfectly healthy, has, however, now been frequently demonstrated by more than one pathologist." (3) The disease usually reappears in the cicatrix, hence, the entire skin, with the tumor and gland, should be removed, leaving an open wound to heal by granulation. An effort is usually made to form a handsome operation by bringing the skin together. How often are hopes of union by the first intention

realized? Seldom, I think will be the common answer; pockets of matter, on the contrary, have been the rule. As the flaps, although united by sutures, in a few days recede, we might as well, if we had no other reason, leave, at the beginning, the floor of the wound exposed.

Why is recurrence so frequent in the cicatrix? Billroth answers this question when he says that the mammary gland is "a derivative of the epidermis, a cutaneous fat gland on a large scale." And that mammary cancer "seems to me always to begin with a coincident enlargement of the small, round epithelial cells in the acini and with small-celled infiltration of the connective tissue around them." Here clinical experience is reinforced by pathological demonstrations.

Another weighty suggestion for removing the skin, arising from the kinship between the mammary gland and the epithelial tissue, is the fact that epithelial cancers, of unmistakable carcinomatous nature, when radically removed, do not show a recurrent disposition.

The rule, then, should be, *operate early, remove with the tumor the unaffected part of the gland, the peri-glandular fat and the skin.*

(*a*) SURGERY OF THE VASCULAR SYSTEM.

Remarks on the Pathology and Treatment of Aneurism.

At a meeting of the Pathological Society of Dublin, last January, Dr. HEAD exhibited a cured aneurism of the arteria innominata, from the body of a gentleman aged fifty-six, who unhappily committed suicide, while laboring under mental depression. The aneurism had been recognized last July, and the patient was treated by Mr. Tufnell's method of rest, in a horizontal position, and limited diet, for more than two months. After death the aorta was found, throughout, in an advanced stage of atheromatous degeneration; it was dilated into pouches, forming true aneurisms in several places. A solid tumor in the anterior mediastinum, adherent to the under surface of the sternum, proved to be a cured aneurism of the arteria innominata. Firm laminæ of fibrin were deposited in the sac, so as to fill it, leaving only a channel for the blood posteriorly.

The chairman, Mr. Joliffe Tufnell, detailed the method of treatment followed in the case, and which had so often proved successful in his hands. There were three essentials for success: 1. The aneurism must spring from the front of the vessel. 2. The sac, no matter how formed, must be perfect. 3. There must be a fibrinating power in the blood.

Dr. Hayden presented an enormous aneurism, which sprang from the left and anterior aspect of the abdominal aorta, at the origin of the cœliac axis, the superior mesenteric artery arising from its inferior surface. It was the largest aneurism he had ever seen, being eleven inches in its antero-posterior diameter. The subject of the disease was a thin, spare man, aged forty-two, of intemperate habits, who was attacked two years ago with shooting pains in the back. A swelling then appeared in the left loin, and afterward in the epigastrium. At first there was no murmur, but subsequently a blowing systolic bruit became audible. There was no alteration in the pulsation on change of position, and the tumor moved with every act of respiration. Limited diet, solid food, rest in bed, and twenty-grain doses of iodide of potassium, thrice daily, seemed, after a week, to have brought about consolidation in a part of the sac. But, after an apparent improvement, sudden death took place. It was then found that a rent had occurred in the posterior wall of the aneurism,

and that large quantities of blood had escaped, forming a vast false aneurism, with firm clots. The iliacus and psoas muscles were infiltrated. Death was caused by a second great irruption of blood into the pleura. The two last dorsal vertebræ and first lumbar vertebra were slightly eroded on the left side. There was no hypertrophy of the left ventricle of the heart. The extensive attachment of the sac to the diaphragm had caused the mobility of the tumor during respiration.

Coma From Compression Relieved by Bloodletting.

Dr. BACON SAUNDERS reports to the Louisville *Medical News*, March 2d, 1878, the following:—

J. H., thirty-five years of age, plethoric habit, a strong and muscular farmer, cutting timber November 2d, 1877, received a simple fracture of both tibia and fibula, three inches above the ankle-joint, and of the tibia, two and a half or three inches higher up.

When assistance reached him, soon after the injury, he was perfectly conscious, and stated that his leg was mashed. He was removed to the house, a distance of half a mile, and the family physician sent for. All this time, according to the statement of friends, he showed no symptoms of shock or great excitement, talking freely and rationally in explaining how the accident happened. He said that the force of the blow knocked him down, where he was still lying when his friends came up, being unable to get his limb from under the tree.

When the doctor came he examined the fractured limb, and also the body, for other injuries. Finding no other lesion, nor indeed any grave symptom, he coaptated the ends of the broken bones without chloroform, and left after applying splints to the limb and resting it on a double inclined plane. This was about five o'clock in the evening. Everything went along smoothly until eleven o'clock, when the attendant noticed he was growing listless and drowsy, his breathing becoming deep and heavy. These alarming symptoms steadily increased until morning, when the doctor was again sent for. He arrived at ten o'clock, and the following was the patient's condition when he got there: coma perfect, with characteristic, slow, puffing respiration, and frothing at the mouth; the pulse slow, very full and strong; pupils closely contracted; rigidity of the muscles of the jaws, neck, and back; the urine was voided involuntarily.

My father, Dr. J. S. Saunders, and I were called in consultation, the doctor asking us, in a note, to come prepared to do an amputation of the leg. It being some distance in the country, it was five o'clock in the afternoon when we got there. Arrived at the bedside we found all the above symptoms, if possible, aggravated. Our diagnosis was compression of the brain as a result of the concussion received when his body struck the ground, at the time of the other injuries. Acting on this belief, and considering the constitution of the man and his habit of body, it was thought that full and free venesection was indicated. He was therefore bled until a very desirable effect on the circulation was observed. Two-drop doses of tinct. of aconite were ordered every two hours. The urgency of the symptoms subsided in a few minutes, and by twelve o'clock P.M., he was partially conscious and able to swallow. I saw him at two o'clock the next day, and dressed his leg with the plastic apparatus, carrying it above the knee. The patient steadily improved, has two sound legs to-day, and is a well man in every way.

My object in reporting this case is to call attention to two facts; the speedy relief

of all the distressing symptoms after venesection, and the importance of a correct diagnosis. The physician in this case declared his intention of amputating if counsel had not arrived; and, indeed, his amputating instruments were sent for, so confident was he of tetanus as the trouble and amputation the remedy.

Treatment of Varicose Veins.

Dr. F. B. Wood writes to the Detroit *Medical Journal*, December, 1877—

I shall confine my remarks in this paper to varicose veins in the lower extremities, and report three of eleven cases which I have treated by hypodermic injection, in each of which I have been successful in effecting a good recovery. In some of these cases dangerous hemorrhage occurred, and in the first case upon which I operated, in 1868, that was the alarming symptom which prompted me to undertake the treatment of the case.

Case 1.—F. M., a German, aged thirty-six years, of large frame, weighing about two hundred and twenty pounds, called at my office February 13th, 1868, to consult me in regard to an amputation of his left leg, on account of varicosed condition of the superficial veins of that leg. On examination of the limb I found the superficial veins below the knee very much dilated and tortuous, the tension and weight of which caused great pain and suffering. The external saphena was dilated to almost an inch in diameter, while the superficial veins of the thigh also presented a dilated, tortuous and sacculated appearance.

At about the union of the middle and lower thirds of the tibia and fibula I found a large, foul ulcer, with numerous smaller ones around the joint below. These ulcers had been open for four or five years; the œdema of the limb was well marked, and the course of the veins was much inflamed. During this time many remedies had been used, but the ulcers had persistently refused to heal.

My patient informed me that about twenty days before he came to me the large ulcer had commenced bleeding, and the hemorrhage had been so severe that it was with great difficulty it was stopped by the application of cold and compresses. The veins of the opposite limb were very much diseased, with some small ulcers around the ankle joint, but as yet had not troubled him as severely as those in the other limb, although the leg was in a very bad condition.

I did not deem it necessary to amputate, and therefore, advised him to wait and give me time to investigate the matter, and determine, if possible, the best mode of procedure in his particular case. In referring to Gross', Erichsen's and Druitt's works on surgery, I found but little difference of opinion expressed by those high authorities in regard to the treatment of such cases; each recommending the removal of a part of the vein, pin ligature, cautery, etc, for permanent relief. Knowing that the object of any operation was the obliteration of the vein, and that any procedure was attended with more or less danger, on account of the formation of clots, I at once resolved to try the hypodermic injection of sol. of persulphate of iron.

Accordingly, on the 14th, after applying a tourniquet above the point where I wished to operate, and having my esteemed friend, Dr. Woolley, make firm pressure below, I proceeded to inject about 30 drops of the remedy above named into the external saphena, about its middle. With the pressure continued, in about five minutes I found, to my great satisfaction, that a firm, hard clot had formed, which was immovable and unyielding. I now made the same preparation and proceeded to operate upon the right leg. This, however, was not so satisfactory. My syringe had become so corroded with the medicine that it was with great difficulty that I

forced a very few drops into the vein. The introduction of the remedy into the vein caused quite extensive inflammation along the course of all the veins, but not sufficient to cause alarm or demand any treatment whatever. The ulcers I dressed with carbolic acid, one part to fifteen parts of glycerin and water.

With this treatment upon my part I left the case in the hands of nature for a cure. On the 5th day of March following every ulcer on the left leg was entirely healed, the veins reduced, and, as my patient expressed it, the leg was as good as ever. The right leg, on account of the failure of the first operation, had improved but little, if any; therefore, on the 6th day of March I repeated the operation as before, and in the course of about seventeen days this leg was permanently cured.

CASE 2.—G. M., American, aged 22 years, also large and powerfully built, a farmer by occupation, called on me, June 10th, 1875, to be treated for some "sores," (as he called them) on his right leg, which had been troubling him more or less for five years. On examination I found a case almost precisely like the first, excepting that the diseased condition did not extend above the knee, and there had been no hemorrhage. In this case, although the patient was a man of extraordinary nerve and will, yet at times he had been confined to his bed with pain and suffering. This being the sixth case which I had treated by this method, I explained to him the operation, and the danger attending it, but he expressed himself willing to submit to any operation which would promise any chance for relief, as he was tired of living if he must continue to suffer as he had done for years past.

With this understanding I prepared to operate at once, and proceeded as in the case above reported. I injected about half a drachm of the solution at two different points, and watched the formation of the clots, which took place in a very short time. Immediately after the operation he rode to his home, about four miles from the city. I heard nothing more from the case until the third day, when I was summoned in great haste to visit him. I confess I was somewhat alarmed by the hasty summons, knowing, as I did, the danger of the formation of a clot, which, if it passed through the vessels and reached the heart, might cause serious trouble, if not instant death. I was much relieved on arriving at the bedside of my patient and finding that he had had a severe chill, which alarmed him and his friends. About four hours after he left my office, on the day of the operation, he was attacked with severe pain in the limb, which began swelling quite rapidly, and on this, the third day, he had a severe chill, followed by a high grade of fever.

The limb was very much swollen and quite tender. At the points where the remedy had been introduced, and for some distance around them, the soft parts were quite hard and considerably discolored. Seeing that the inflammatory action was so high that it would be extremely doubtful about allaying it without some suppuration, I at once ordered poultice of lini pulv. to be applied over the entire limb, and gave him large doses of sulph. quinia with tincture chloride of iron; also opium, to relieve pain.

This treatment was continued without intermission for four days, when the slough had formed at both points of injection, and was discharging freely. The swelling and inflammation in the limb had entirely subsided, and the pain had become quite bearable. I now removed the poultices and dressed the limb with tepid water dressing. Continued the internal treatment as before, with the exception of the opium, which was not demanded. On the eighteenth day I removed the clots formed by the introduction of the iron, and the ulcers began to heal kindly, and on the thirty-second day all that was left of any of the sores were the scars. The veins were re-

duced, the limb had assumed its normal size and shape, and the case proved an entire success, the patient never having suffered the least trouble with it since.

CASE 3.—In this case the limb was in about the same condition as the other two already reported, and had been troubling the patient for a number of years. It had become so bad that the patient had, on several occasions, proposed amputation.

The operation was performed as described in the former two cases, and on the second or third day afterward the patient was on the street.

From one or all of the following causes—being upon his feet too early, impurities in the remedy used, or a diseased condition of the system—a high grade of inflammation was aroused in the limb, sloughing took place, and the clots were removed, as in Case No. 2. The sores upon the limb healed very slowly, and the recovery was not at all satisfactory. The failure was not the fault of the operation, but resulted from one or all of the causes above named. The patient, in about four months after the operation, fell into my hands for treatment of precisely the same condition of the opposite leg.

Believing his system to be in a syphilitic condition, I put him upon the following preparatory treatment, and continued it at least three months before I would consent to operate:—

℞. Potass. iod.,
Ammonia mur.,
Aqua font.,
Syrup sarsap. co., aa. ℥ij. M.

Of this mixture I gave him one teaspoonful four times each day. I continued this treatment, as above stated, for about three months, and on January 10th, 1877, I injected the varicosed veins in two of the most prominent points I could find.

There was no excessive inflammation following this operation, neither was there any febrile action or sloughing. The necessary inflammation which had taken place subsided, the ulcers (four in number) healed kindly with the application of carbolized water, and in fifteen days the recovery was perfect and the limb cured.

(*b*) SURGERY OF THE NERVOUS SYSTEM.

Neuromata of the Stump after Amputation of the Arm.

Dr. JAMES M. SMITH, of Morpeth, Ontario, reports the following case in the *Canada Lancet*, May 1st, 1878:—

Mr. T., a well-to-do middle-aged farmer, had his right arm crushed in a threshing machine, on the 19th August, 1876. Being sent for immediately, I found, on arrival at the place, the injury of so serious a nature as to require amputation, and assisted by Dr. Richardson, of Chatham, I took the arm off at the upper third. The stump healed kindly, and the case progressed so favorably, that in four weeks from the day of the accident he drilled in five acres of wheat. For a long time he complained of no trouble or disturbance, other than is common to such cases.

On the 22d of October, 1877, he called at my office, much emaciated, and complaining of extreme sensitiveness and constant pain in and about the stump, attended with muscular weakness, tetanic movements of the muscles of the parts, stiffness of the muscles of the neck and jaw, difficult deglutition, and general derangement of the health. On examining the stump, I found several tumors of various sizes, the largest at the termination of the median nerve, and others in the neighborhood of the brachial artery. Slight pressure being applied to these bulbous

enlargements increased the tetanic movements, and produced most excruciating pain.

The opinion had been volunteered by some, that the median nerve had been incorporated in the original cicatrix. Indeed, I should have inclined somewhat to this view myself, had I not taken especial care to avoid such a calamity at the time of amputation. Having tried palliatives to no purpose, I advised the use of the knife, but requested him first to consult Dr. Murphy, of Chatham, who advised the removal of the tumors as the only sure means of giving permanent relief. A few days afterward the patient was brought under the influence of chloroform, and Esmarch's bandage applied from the point of the stump to the top of the shoulder. An incision being made three inches long, close and nearly parallel to the original cicatrix, and over the median nerve, I came down upon the first tumor, which was removed at once. Tracing up the incision, I came upon another of smaller size, about an inch from the first, which we removed in like manner. The tumors were bulbous enlargements, having a firm, dense consistence, and constituted a diseased, hypertrophied degeneration of the nerves, that of the median being three inches in length and two inches in diameter. In this case, the nerves were entirely free from the old cicatrix.

Where the tumors were multiple, as in this case, amputation was formerly resorted to for relief. Why degeneration of the nerves takes place after amputation of the arm, more frequently than of any other part, is, in my opinion, owing to the way the section is made in performing the flap operation, as was necessary in this case. Unless the median nerve be well retrenched, similar results may frequently occur. Of course, this condition of the nerves takes place, more or less, after all amputations, but only demands surgical interference when extreme, as in the foregoing case. During the operation, not more than a tablespoonful of blood was lost. The distressing symptoms have entirely disappeared, and the patient is now able to sleep and work as usual.

Tetanus Following Resection at the Hip Joint Cured by Physostigma.

Dr. J. B. ROBERTSON, Yreka, California, gives this case in the *Pacific Medical and Surgical Journal*, April, 1878:—

George Miller, aged forty-five years, was admitted into the County Hospital, April 6th, 1876, having suffered for twelve or fourteen months with a sinus which discharged a serous, badly-smelling, or sanious pus. It was located near the hip joint, and evidently resulted from a rifle-shot that he had received two years previously. The second day after admission the case was thoroughly examined by Dr. Ream and myself. Concluding it to be caries superficialis of the greater trochanter, proceeded to operate accordingly. The incision was made posteriorly, in accordance with the original sinus. After removing the remaining portion of the trochanter major, we found our work was not yet finished, for on further examination there was as much as three and a half inches of the shaft of the femur, with a portion of the anatomical neck, badly diseased. With a few minutes' consultation, we deemed it necessary to remove the head and four inches of the shaft. I, therefore, extended the incision, and with the greatest difficulty succeeded in luxating the head of the bone. The diseased portion was then removed. The wound healed by first intention, and the operation proved successful, with about four inches of shortening, which is substituted with a block to the sole of the boot.

In two days after the operation his pulse was 120, when it fell gradually to 75. On the sixth day it rose again to 115, on the seventh day it was 90, on the eighth day 110, on the ninth day 90. His general condition, however, improved gradually for three weeks, when, from some cause unperceived, tetanus supervened, from which he made a remarkable recovery. We at first treated the tetanic spasms with morphia, hypodermically, also, with chloral hydrate, but received no benefit from either. Finally, we commenced the use of physostigma, in ¼-grain doses of the extract, increasing it each day until he took four grains at a dose, twice a day. By increasing the dose we found that it relieved him, therefore, we continued the use of it until a final recovery ensued.

(*c*) SURGERY OF THE EXTREMITIES.

Cases Illustrating the Treatment of Penetrating Wounds of the Knee Joint.

In the *Canada Medical Record*, March, 1878, Dr. A. D. STEVENS gives the following cases:—

The first case occurred in February, 1873, and was in the person of a boy about sixteen years of age, of healthy appearance himself, as well as his parents. He had been preparing wood for sugar making, and accidentally struck his knee with the axe, inflicting a wound about an inch in length upon the upper and outer border of the patella, and exposing the joint to that extent. He did not stop using the injured limb until an active inflammation set in, when my services were asked. Upon visiting him, I found all the symptoms of inflammation well marked, and the limb placed in the usual position, with a view of lessening pain. I at once gave him alterative doses of gray powders with Dover, and cold applications were placed upon the affected joint. After the more acute symptoms had subsided, I gave him iodide of potassium, with compound tincture of gentian, and painted the knee with tincture of iodine. At this time I was also able to place a well-adjusted splint upon the posterior portion of the limb, in such a manner as to secure perfect rest of the joint, with the limb straightened. But few days passed before the presence of pus in the cavity of the joint was evident, but as the opening made by the axe still existed, I did not interfere. The remainder of the treatment consisted principally in keeping the limb in the position forced by the splint, and doing for him whatever constitutionally he might require. The joint filled at least half a dozen times, with pus, but was as often emptied by turning him over, as before described. The patient was kept in bed, with the splint securely fastened to the leg, till all appearances of disease had left, when he was allowed to use it cautiously. He has to-day as valuable a limb as he ever had.

The second case occurred in the month of August, 1875, and was in the person of a boy about fourteen years old. Like the preceding case, he was healthy, and of healthy origin. The cut was made with the axe, as in the former instance, but nearly opposite the site of the other, and about the same length. I did not see this boy, however, till suppuration had taken place, so that he had only to be turned over to relieve the joint of its contents. It only filled once, fortunately, and, with the aid of the splint already noticed, and alterative doses of iodide of potassium combined with a bitter tonic, and free painting of the joint, all traces of disease soon disappeared. About the middle of the following October he was able to do full duty upon the farm.

With reference to the third case I promised to speak about, I might say that, like the other two, he was apparently healthy and of robust parentage, while his age was about thirty years. He is married, and his occupation that of carpenter. While working at the frame of a building his adze, from some cause or other, missed and struck him a blow just underneath, and a little to the right of the patella, causing a wound fully an inch in length, and penetrating the joint. I saw him within two hours of the accident. He had lost only a trifling amount of blood, but the wound was gaping to such an extent that the synovial membrane was visible for more than the length of the cut. Thus you will perceive the cavity of the joint received all the fresh air you could ask for. This fellow I strapped with the ordinary adhesive straps, in such a manner as to prevent any motion whatever of the joint, and enjoined him on no account to step upon the foot. He returned twice afterward, for a renewal of the dressing, which, with a simple wash of carbolic acid, was all that was required for the cure of the wound. The wound healed by the first intention, and consequently no inflammation supervened, or, in fact, any other untoward event. In less than four weeks he was as well able to work as ever.

Idiopathic Symmetrical Osteomyelitis.

Dr. CHARLES CARY, of Buffalo, sends the following report of a case to the *Medical Record* for February, 1878:—

October 9th I was called, late in the afternoon, to see a child, S. M., living in the German part of this city.

I found a little girl with the following family history, and a disease presenting the following symptoms—

She was seven years of age; was one of twins; had never been robust, but she had never had any serious illness. Family history of parents particularly healthy.

The child had been ailing for ten days, but was running about until five days previous to my first visit. At that time she complained of pain in the legs and hip joints; was delirious at times; insomnious; understood all questions asked, but answered unintelligibly; took readily what was offered as nourishment, but had vomited frequently during onslaught of disease; bowels constipated; appearance of countenance particularly anxious.

The thighs were rotated out, so as to allow the legs and thighs to rest evenly on the bed; the legs were slightly swollen, and the œdema was discovered extending half way up along the tibia.

The disease had first made its appearance in the left ankle, but within the first twenty-four hours had also invaded the right. Both joints, at the time of my first visit, presented the same appearance of redness and slight swelling, identical with acute articular rheumatism. No injury had been inflicted other than a slight blow upon one malleolus four days prior to the invasion of the disease; and, as I stated, both malleoli and both ankles presented, at the time of my first examination, this rheumatic appearance. The pulse was 120; temperature, 103°.

Gave anodyne, to overcome insomnia and pain.

October 10th, 10 A.M. The child had slept well under the influence of pulv. doveri, grs. v, but presented much the same appearance as on previous evening. Pain in the hip somewhat increased; redness and pain from ankles were extending up the leg, along the tibia; œdema, at this time, showing itself as high as the knee. Pain in hip only felt when the femur of corresponding hip joint was moved. The appearance of thighs was normal, but there being so much pain, it was thought that the

same disease which had shown itself in the legs with so much violence, was extending itself along the thighs as well, though it seemed to make itself known more at the articulations than in the shafts.

All the articulations were movable, but the pain accompanying motion was intense. Child cried out frequently with pain, referred in part to legs and in part to abdomen. Urine high-colored and scanty; bowels still costive. Pulse 130 per minute; temperature 104°. Gave sulph. morph., grs. ½ p. r. n.; sodæ et potass. tart., grs. x, every hour and a half. Spirits frumenti and beef essence, as much as could be tolerated.

October 11th, 10 A.M. Called consultation. The patient had been unable to retain salts, but the nourishment had been well borne. All redness had disappeared from along tibia; redness about ankles remaining the same. Tongue typhoid in character. Pulse 114; temperature 104½°. Thorough physical examination made, with negative results further than what has already been stated.

The great similarity between existing symptoms and symptoms of rheumatism rendered diagnosis uncertain, but osteomyelitis was suspected. 4 P.M. Some improvement in general; tongue clean; anxious expression absent; more intelligence. 7 P.M. Patient died.

Post-mortem examination sixteen hours after death. Ecchymotic spots along posterior parts of legs and thighs; no appreciable difference observed in size of legs or thighs.

The examination was obtained with difficulty, and not thorough, owing to objections on the part of parents.

An incision made along one tibia was followed by free flow of thin, dark pus, with many shreds and strings; tibia softened and completely denuded of periosteum; pus was found under periosteum and completely surrounding the bone; every portion of the tibia which could be investigated through this opening was found in this same condition.

The disease had spread itself, evidently by continuity, throughout the entire bone. Though the parents rendered it impossible to make a more complete examination, it was thought by those present, who had seen the patient in consultation, that the thighs were in a like condition.

Diagnosis, osteomyelitis. Before closing I would state that, the disease being symmetrical, beginning in the joints and presenting the external appearances of rheumatism, together with its sudden attack, rapid progress, and great constitutional disturbances, it being devoid of traumatic origin, all rendered the similarity most striking and complete between symmetrical osteomyelitis and acute artiular rheumatism. The one a very rare, and the other a very common, affection.

Artificial Anæmia as a Mode of Treatment for Diseases of the Limbs.

The *Medical Times and Gazette*, December, 1877, remarks that a new application is suggested for Esmarch's elastic bandage, namely, as an auæsthetic and curative agent in painful inflammatory affections of the extremities. Dr. BERNHARD COHN, of Steglitz, relates (*Berl. Klin. Wochenschrift*, October 29th, 1877) two cases in which the induction of artificial anæmia by the bandage was followed by great relief, a case of phlegmonous inflammation of the foot in a man of sixty-three, and one of simple œdematous inflammation of the forearm in a maid-servant; and he gives the details of a third case, in which a practical cure resulted from Esmarch's method,

after all other modes of treatment had been exhausted. The patient, a boy of three and a half years, had white swelling of the left knee joint, of eighteen months' standing, with considerable enlargement of the condyles of the femur, and thickening of the tissues around the patella and the head of the tibia. There was great sensitiveness of the parts to pressure, movement was impaired, and walking only possible for a step or two, with lowered pelvis, and with the tips of the toes alone reaching the ground on the left side. After a few weeks' daily application of the bandage, for fifteen to sixty minutes, the improvement was so great that the limb could be moved in all directions or handled without pain, the entire sole of the left foot could be brought to the ground in walking, and the gait was even on the two sides, in fact, all that was left of the former affection was a little swelling and limitation in the movement of the joint. Dr. Cohn, in his remarks on the cases, declares that in practice the idea that the increase of blood in the capillaries, which follows the removal of the bandage, will entirely undo the effect of the previous anæmia, is not sustained. He considers that the bandage acts mainly by relieving the congestion of the inflamed part, and perhaps by improving the conditions of diffusion between the tissues and the blood vessels. He recommends an elastic band, one inch and a half wide, encircling the limb so that each turn overlaps the one below, and finished off with five to eight turns completely covering each other. He thinks that the bandage may be allowed to remain on the limb longer than we might *à priori* think justifiable, and that there is less danger of gangrene if both arteries and veins are completely compressed than if the compression be imperfect, so as to close the veins and hinder the escape of blood, while it is still allowed to enter by the arteries. In the latter case, œdema, with enormous rise in the blood-pressure, must be the result. To avoid pain as much as possible, the final turns must not be tighter than absolutely necessary to stop the circulation. The questions, "How often can and ought the constriction to be renewed?" and "Is it better to use single long compressions, or frequent short ones?" require further experience to answer them satisfactorily.

Subcutaneous Treatment of Exostosis by Fracture.

At a meeting of the Clinical Society of London, last December, Mr. MAUNDER read notes of and exhibited two patients whom he had submitted to this novel method of operation for exostosis. The first case was an exostosis of the femur in a girl aged fifteen, who was admitted into the London Hospital in June, 1874. She had for many months suffered pain and discomfort at the back of the left knee, and was unable to extend the leg fully upon the thigh. When walking, she could only place the toes upon the ground. A bulging of the thigh just above the external condyle was found, and proved to be caused by a pedunculated exostosis attached to the back of the femur, at its outer side, just at the junction of the epiphysis with the shaft. The tumor was pressing against the tendon of the biceps muscle and the external popliteal nerve. To relieve pain and enable her to walk, it was necessary either to remove or to dislodge the growth, which might be done either by abscission through an open wound—a formidable proceeding, with many possible concurrent and subsequent dangers—or by subcutaneous division of the pedicle with the saw or chisel, or fracture of the pedicle by violence, without any wound whatever, supposing that by this latter method the tumor might be detached, it might become necrosed and ultimately extruded by suppuration, or might be absorbed or reunited. If suppuration occurred, it would not do so until the bone cells of the femur, opened by the fracture, had become closed in, and thus protected from

danger; if absorption occurred, there would be no further trouble; and, if reunion took place, the body of the tumor might have so changed its position as to no longer interfere with the patient's comfort. Subcutaneous fracture of the pedicle was resolved upon, and the operation was done on July 8th, 1874. The skin being protected by a piece of chamois leather, the tumor was seized with a pair of gas-fitters' pliers, and, being firmly held, was suddenly jerked, and its pedicle broken. Ice was applied for two or three days; and a little tenderness, swelling, and ecchymosis were the only consequences of the operation. Passive movements were afterwards kept up; but, notwithstanding these, reunion occurred. The body of the tumor, however, occupied a new position in the popliteal space, and troubled its owner no longer.

The second case was one of exostosis of the tibia, also in a girl, aged fourteen, who was admitted into the London Hospital in February, 1877. She stated that, about two years before she had slipped and sprained her right knee. This accident was followed by pain and swelling, and she could only get about on her toes. Since then the case had been treated during one period of three months with iodine paint, but without avail. On examination, a rather large pedunculated exostosis was found attached to the inner edge of the tibia, just below the internal tuberosity. This was also treated by subcutaneous fracture with the gas-fitters' pliers, but with a result different from the above. The pain and inability to walk were removed; but the tumor had not reunited with the shaft of the bone, and its mobility was readily recognized. The object of the operation—relief to the patient—had been attained without any external wound; a fact upon the desirability of which it was unnecessary to dwell.

Intermittent Hydrarthrosis of the Knee.

M. Panas related to the Société de Chirurgie (*Union Méd.*, April 9th; *Gaz. Méd.*, April 20th) a case of double hydrarthrosis of the knee, of a type of which he had never previously met with an example. It is not one of those recurring hydrarthroses which return at variable epochs, under the influence of the same special cause which gave rise to the first attack, but puts on an intermittent form as regular as that observed in intermittent fever. The subject is a woman, twenty-two years of age, exempt from rheumatism, scrofula, or syphilis, who, at the age of seventeen, was delivered of an infant at full time and in good health. A fortnight afterward she was seized suddenly with an indolent form of hydrarthrosis in both knees, the fluid effused being sufficient to raise the patellæ very distinctly. This state of things lasted four days, when it all disappeared. A fortnight later, to the day (always a Monday), the hydrarthrosis again appeared, and lasted again four days; and so the affection kept on alternating during four years, with the greatest exactitude. Twice during this time she became pregnant, once going to the full time, and once aborting, and on each occasion, until delivery was accomplished, the attacks were suspended, to recur after it at the same intervals as before. Of late they have continued longer, lasting a full week. During this long period all kinds of treatment had been tried, without avail. When M. Panas admitted the patient into the hospital, he was disposed to doubt her story; but he has since witnessed three of the attacks. Independently of the attacks, the joints seemed to have nothing the matter with them beyond a scarcely perceptible thickening around the synovial *culs-de-sac*, their movements being quite normal. Quinine and all other means have proved of no utility. M. Le Dentu remembers to have seen a somewhat similar case in Voillemier's service, occurring in the person of a young man, the hydrarthrosis coming on every

fortnight, and lasting four or five days. In this case only one knee was affected, and the attacks came on with less regularity than in the case of M. Panas. After quinine and other remedies had completely failed, Voillemier practiced transcurrent cauterization over the joints, and kept the limb immovable, and the patient was dismissed, at all events temporarily, cured.

II. MILITARY SURGERY.

The Mortality of Military Surgeons.

The following extract is given in the London *Medical Times and Gazette*, November 24th, 1877, from a recent work by Dr. LILJEWALCH, of Sweden :—

It is a general, but mistaken idea, that the military medical man is less exposed to danger than the commanding officer. This error is sufficiently refuted by experience, the mortality among the medical staff in active service being much greater than that among the officers. I have mentioned above what the military staff suffered during the campaign of 1808, and in another place recorded the fact that during the year 1789 no fewer than sixty medical men lay sick at one time at Carlskrona.

Of 216 medical men on service in the above-mentioned place in 1789–90, 210 sickened, and forty died. During the epidemic in 1808–9, twenty or thirty medical men, most of them in the prime of life, died in the same place. In Scania, where a military corps was collected in 1809, a similar rate of mortality prevailed among the medical staff. Beside a number of subordinate officials in service at the hospitals, two physicians-in-chief (Thielke and Sörling) fell victims to the prevailing epidemic. These instances, from our own more recent military history, may suffice. I subjoin some from the armies of the chief powers of Europe.

In the War of Liberation (against Napoleon I) the medical staff of the Prussian army amounted to 2170 individuals. Of these, nine fell in battle, forty were wounded, and 150 died in hospital, most of the latter of typhus. Eighty civilians on hospital service shared the same fate. In the Russian War with Turkey (1828–29), the Russian army lost 300 graduates of medicine and nearly all their surgeons.

During the Twenty Years' War carried on by the French (under the First Republic and the Empire), one-eighth or one-ninth of the military staff were generally incapacitated by sickness acquired in hospital. One-third of those that were more seriously affected died, and during the prevalence of infectious fevers more than one-half the medical staff sickened, and the mortality among them was twice as great as at other times. Hence a reserve of one-tenth of the effective number was always found at headquarters, to be disposable as substitutes for their deceased colleagues. Between 1792 and 1801 the French army lost more than 2000 medical practitioners, and in every campaign one-fifth of those on service in the hospitals perished. In Egypt, in 1792, eighty-two perished out of 125 army surgeons who attended the army from France. On this occasion, the loss of the medical staff was two-thirds of its entire number, while that of the other departments of the army was only one-third. In the first three campaigns, the Western Army of the Pyrenees lost, in fifteen months, above 300 of the medical staff with fever, and in 1794 and 1795, the loss among the medical staff of the Eastern Pyrenean Army, from dysentery, was one-

half of the entire number. The same results were observable in the case of the Rhenish army at the siege of Mayence, and subsequently in Italy. Of 130 surgeons who followed the French army to St. Domingo, nearly two-thirds died of yellow fever. The greatest mortality among the French medical staff occurred in 1793-97, when the medical department was in a state of total disorganization, every measure adopted on the spur of the moment, and the greater part of the military practitioners had never seen, much less treated, a patient. The succeeding years, up to the Prussian campaign in 1807, displayed an improved state of affairs. But in the Peninsular War, in 1808, and still more in 1809, an increased rate of mortality prevailed among the medical staff, the hospitals being badly arranged, and proving, from their crowded and filthy condition, centres of infection. The campaign of 1812–14 was so fatal to the French army in general, and particularly to the medical staff, that it is impossible here to exhibit the total extent of the losses incurred by the latter. In 1835, out of twenty-two medical practitioners attacked by cholera in Algiers, only three survived, two of whom were massacred by the enemy. Out of thirty-two army surgeons despatched to Africa in September, 1842, five died within fifteen months, two of them were killed by the enemy, and two from the prevailing dysentery. From 1830 to 1837 forty-two military practitioners died in Africa. The Crimean War cost the French army eighty-two military practitioners—a loss greater than that sustained by any one corps in the army; of these, forty-six died of typhus. In the Italian campaign, under Field Marshal Radetzky (1848–49), 800 medical men served in the Austrian army; of these, during the two years' campaign, 150 died of prevailing epidemics, and more than thirty fell in battle or died of their wounds, making one-fifth of the entire corps—a rate of mortality nowhere equaled among officers, and seldom among rank and file.

III. MECHANICAL SURGERY.

New Varieties of Sutures.

Two new forms of suture are suggested by Dr. H. L. Thomas, of Richmond, in the *American Journal of Medical Science*, October, 1877; they appear to offer peculiar advantages in certain cases, entitling them to fair trial.

They are specially adapted for deep incisions and lacerations, such as those affecting the female perineum. In some such cases, owing to the great tension and softening of the parts, little more is effected by all ordinary sutures than a puckering of the edges of the wound, the latter being drawn down to the base, which is its most unyielding part. To avoid this, by rendering the walls of the wound as unyielding as possible, Dr. Thomas proposes his cannula suture. His second or figure-of-eight suture has for its object the reduction of the depth of the portion of the wound included in the wire.

1. For the cannula suture a number of small steel cannulæ are required, large enough to allow a strong wire to pass freely through them, and long enough to reach the bottom of the wound, where they should be slightly curved. The surface end of each should have a shoulder, to which the wire may be secured. The desired number of sutures being introduced in the usual way, a cannula is passed over each end of the wire, pushed home to the bottom of the wound, and then secured by a

twist of the wire over its shoulder. When all the wires are thus treated, the sides of the wound are brought into contact by drawing the heads of each pair of cannulæ together with a thread, and so fixing them.

It is alleged of this suture that the tension of the parts may be controlled by loosening or tightening the thread over the shoulders of the cannulæ, while the wire, passing between the buried ends of the latter, allows their free motion, like a hinge. At the same time, the walls of the wound are kept firm and unpunctured.

2. *Figure-of-Eight Suture.*—This is made by passing a spiral needle into the right face of the wound at half its depth, through the bottom in the usual way, and out on its left face at a corresponding height. The needle is then threaded with the left-hand end of the suture, carried through the puncture already made on the right face of the wound, and so to the surface. The right-hand end of the wire is similarly used on the left side. The edges of the wound being now approximated, and the wires secured, the operation is finished. The crossing of the wires at mid-depth of the wound lessens the amount of strain on the included tissues by one-half.

On Horsehair as a Drain for Wounds.

Prof. JOSPEH LISTER prefers, in many cases, this substance. He says of it, in a lecture in the *Lancet*, January 5th, 1878—

I had previously used the caoutchouc tube as a drain in a case of bursitis of the wrist, but I found a difficulty, from the liability of the tube to be compressed by the tendons. This might, I thought, be overcome by the use of the horsehair drain, which at the same time would, for this particular purpose, be superior to one of catgut, because the catgut would probably be absorbed before the necessity for drainage would be over. Accordingly I cut down above the wrist, making my way between the tendons of the flexor sublimis to the distended sheath of the flexor profundis, and, as soon as this was opened, passed in a large bullet-probe, somewhat curved, slipped it along under the annular ligament, and pressed it forcibly toward the palm, so as to perforate the palmar fascia while avoiding injury to the palmar arch, and, having divided the skin over the point of the probe, dilated the opening in the fascia with dressing forceps, and then passed into the eye of the probe a substantial drain of horsehair, which had been well purified by steeping in a 1 to 20 solution of carbolic acid, and withdrew the probe, leaving the horsehair drain in its track. The drain answered admirably, and presented the further great advantage that it could be reduced in bulk in accordance with the diminution of the serous discharge, by drawing out as many hairs as might be desired; and in the course of three weeks, the last portions of the drain having been withdrawn, the wound healed without the occurrence of suppuration from first to last.

While the horsehair has the advantage over catgut that it can be used when necessary over a longer period, it has, in some cases, the converse superiority that it can be not only reduced in bulk, but withdrawn altogether at an earlier period than is required for the absorption of the catgut; for the catgut, in process of organization and absorption, becomes more or less incorporated with surrounding tissues through the medium of the cells of new formation which invade it, and, if an attempt is made to withdraw the drain in whole or in part, there will often occur inconvenient oozing of blood through the rupture of newly formed vessels. And if, on the other hand, the drain is left intact till the parts of the catgut within the wound are entirely absorbed, there remains a small granulating sore at the place of exit of the drain, which may retard for some days the complete healing of the wound. Further, the

threads of the catgut, as they undergo organization, are increased in bulk by the formation of the new cells, and their interstices are liable to be more or less choked, so as to interfere with effective drainage. The horsehairs, on the other hand, lie unchanged among the tissues, and their interstices remain to the last as effective as they were at the outset.

The next case in which I used the horsehair drain was in transverse fracture of the patella, treated by laying open the joint, drilling the fragments obliquely, and tying them together by means of strong silver wire. Being apprehensive that blood and serum might be effused into the joint to such a degree as to produce inconvenient tension unless a free exit was provided, I resolved to introduce a drain at a dependent part of the articular cavity; but I feared that if a caoutchouc tube was used, it might be rendered inefficient by being compressed between the condyle of the femur and the neighboring tissues. I therefore had recourse to the horsehair, introducing into the posterior and outer part of the joint a drain, about a quarter of an inch in thickness, by means of the dressing forceps employed as before described. It worked to admiration; for though there was, indeed, in the first twenty-four hours, a very copious sanguineo-serous effusion, as shown by the soaking of the antiseptic gauze, yet not the slightest swelling of the joint occurred, and, after nine days, the small remains of the drain, which had been previously reduced at successive periods, were withdrawn, to allow the puncture to close. The drain of horsehair was as pure and white* as if it had been merely dipped in water; having been washed quite clean of the blood which first occupied its interstices by the colorless serum which, after the cessation of the original sanguineous effusion, had been the only discharge. I was so much impressed with the satisfactory working of the horsehair drain in that case that we have since employed it in preference to the caoutchouc tube, in all our wounds, and have had good reason to be pleased with the change. (If it be necessary to reintroduce a horsehair drain, it is readily done by taking a wisp of hair of half the thickness required, bending it in the middle at a sharp angle over a probe, and tying a piece of carbolized silk round it, close to the probe, on withdrawal of which the drain is left with a rounded end, which passes readily into the interior of the wound.)

Surgical Use of Paper Lint.

Dr. W. W. KEEN writes to the *Medical Times*, March 30th, concerning this substance. He says—

The article in question comes in sheets, about twelve by eighteen inches, and about as thick as patent lint, and consists of pure paper felt. In order to test the relative absorbent powers of the paper and the patent lint, I made a number of comparative experiments, of which the following may serve as a sample: A piece of patent lint weighing one hundred and thirty-three grains, and measuring five and one-half by nine inches, was suspended over a basin of water, so that one inch of it hung in the water and eight inches out of it. In eighteen minutes it was completely wet, and weighed six hundred grains, a gain of four hundred and seventy-seven grains, or three and one-half times its own weight. A piece of patent lint of the same weight, but measuring nine by nine inches, was similarly suspended, and after five hours it weighed only three hundred and sixty grains, a gain of two hundred and twenty-

* I used white horsehair in this case simply because I did not happen to have at hand any of the black, which is generally preferable, because the individual hairs are thicker, while the dark color has the advantage of making them more conspicuous, especially when they are used for sutures.

seven grains, or one and three-fourths times its own weight; only the part in the water was really wet, and for about two and one-half inches further up it was damp, the remaining five and one-half inches being dry.

As to cost, the paper lint is vastly cheaper. If regard be had only to weight, a roll of patent lint weighs about twelve and three-fourths ounces, and costs one dollar and sixty cents, or about twelve and one-half cents an ounce. A pound of paper lint, sixteen ounces, costs fifty cents, or about three cents an ounce. In regard to surface cost (and in practice this is the one to be chiefly considered), a similar disproportion exists. A roll of patent lint measures five yards by fifteen and one-fourth inches, or as nearly as may be nineteen square feet, at one dollar and sixty cents, which is eight and one-half cents per square foot. Paper lint varies somewhat in the number of sheets to the pound, but eleven sheets (twelve by eighteen inches) are about an average, which would give sixteen and one-half square feet, at a cost of fifty cents, or about three cents per square foot. In other words, patent lint is over four times as costly per ounce, and nearly three times as costly per square foot.

Put to test of practical experience in my wards at St. Mary's Hospital, it has given great satisfaction, and is immensely superior in most respects to the patent lint. As an absorbent it is so far superior that there is no comparison between the two. As a means of applying moist dressings, such as lead water and laudanum, warm or cold water, and other solutions, it answers as well as ordinary lint, except in one particular—it tears too easily. To remedy this, I have suggested to the manufacturers that a sufficient number of cotton or linen threads be added to the pulp, to give it greater tenacity, and when this is done it will be better than the ordinary lint. For salves and other dry dressings on even or moderately uneven surfaces, it answers admirably, but on very uneven surfaces, as the ends of some stumps, it is not so pliable as patent lint, and does not so readily adapt itself to the inequalities of the surfaces. I have also used it for belladonna plasters, etc., with good success. If, however, the plaster is so stiff as to require considerable rubbing, it is apt to scale off in layers, a defect which I suspect the linen or cotton threads above alluded to may very probably remedy.

Once that the proper tenacity, softness, and thickness are attained, it is easy to see to what excellent uses it may be applied. It can be impregnated with carbolic acid, salicylic acid, chloral, or other antiseptics, and used dry or wet; with astringents and hæmostatics; and coated with rubber on one surface will answer admirably for light poultices. I have so used it, covered with waxed paper, with excellent results. This waxed paper, I may say in passing, I introduced into St. Mary's Hospital some years ago, and it has almost entirely replaced the more expensive and scarcely more useful oiled silk. It is prepared in the hospital, from French tissue-paper, in sheets, and is of excellent quality and very cheap.

The Movo-amobile Dressing for Fractures.

Dr. W. W. Dawson, Professor of Surgery, Medical College of Ohio, writes to the Cincinnati *Lancet and Observer*, May, 1878—

I have recently had a case which illustrates the "Bavarian" manner of applying plaster.

A little girl, thirteen years old, was brought into the Good Samaritan Hospital with an oblique fracture of the left femur, and near the ankle joint a comminuted fracture of the tibia, and a simple fracture of the fibula. The fracture of the femur

was compound, one fragment being thrust through the posterior aspect of the thigh. Associated with the fractures near the ankle, there was great injury of the soft parts.

The girl was not received in the house until twenty-four hours after the accident, at which time there was great swelling of the foot, ankle, and leg up to the knee; not only great swelling, but the parts were livid; were what bystanders usually describe "as black as your hat." This dark color of the swelling showed extensive subcutaneous hemorrhage, and associated with great tension, the logical result of this condition seemed to be gangrene, and especially was this to be feared from the presence of another symptom, a low temperature of the part; to the touch it seemed cold.

What could be done with this oblique fracture of the femur? Extension was not to be entertained; the condition of the lower part of the limb prevented this. Neither adhesive strips nor the gaiter could be applied over this badly damaged, well nigh devitalized ankle. Leaving the femur to take care of itself, shortening daily, the ankle might have been treated by the bran box, or wire split. With such plan, however, great deformity must have resulted. No advocate for the immovable appliance would have dared to enclose that ankle, and shut it out of sight by a permanent dressing of plaster, starch, or dextrine.

The case seemed to be an admirable one for testing the movo-amobile *splint*. While I made extension upon the heel, my assistants, Drs. Bolan and *Grill*, and Mr. Coffman, encased the limb. A fourth assistant pressed the fragments of the femur into position. At the end of twenty-four hours the splint was opened, and I was gratified to find that the steady pressure of the plaster had greatly reduced the swelling and tension of the foot and ankle. At the end of forty-eight hours, and seventy-two hours after the receipt of the injury, a trap was made on the posterior part of the splint, to correspond with the wound in the thigh. In a few days the damaged skin over the internal malleolus sloughed, and here another trap had to be made.

From the wound in the thigh there has been a large amount of purulent discharge.

Now, at the end of nine weeks, union seems to be about complete, and there is scarcely a perceptible shortening.

Does not such a case as this settle the question of splints? Their name is legion; but must they not all go to the rear, while one made with two strips of flannel and a few pounds of plaster comes to the front? If such a result can be obtained in an obliquely fractured thigh, with a still more severely injured leg, why think, even for a simple case, of the long splint, the double inclined, the wire, the anterior wire, the long, extending from the arm pit to the heel, or short thigh with elastic extension. If shortening cannot occur when the limb is thus encased, why longer discuss the best plan of making extension and counter-extension? Most bad results have occurred from the inability of the surgeon to establish and maintain extension. The key note for the latter, counter-extension, was struck, when, a few years ago, elevation of the foot of the bed was advised in oblique fracture of the thigh. The weight of the body was thus made to form a point of resistance, but how to keep up extension so as to prevent shortening, and be at the same time comfortable to the patient, is, with the profession, still an open question. Probably adhesive strips have given most satisfaction, but they do not always prevent deformity.

With the Bavarian plan shortening cannot occur.

It may be said, positively, that there is no difficulty in extending the limb to its normal length at the time of the accident; it can be done with but little force;

hence shortening occurs in the subsequent progress of the case—the muscles almost imperceptibly get the advantage of the apparatus applied. When solidification has taken place the surgeon is humiliated by finding from a half to three and a half inches of deficit.

Now, if the fracture be reduced, and the movable-immovable dressing be applied to the limb while of normal length, the muscles cannot force the fragments upon and by each other so as to reduce the length. I would impress this fact upon the young surgeon, that it is not in the beginning when difficulty is encountered in extension—at that time but little exertion is required—but as before said, as the case advances the shortening occurs, when the dressing becomes disagreeable, or loose, or from inattention on the part of the surgeon or nurse.

The Bavarian fits the limb as exactly as the immovable; then it is the most easily moved and adjusted of any other kind of splint. It combines, then, in an eminent degree, the virtues of both.

The only objection to the immovable dressing was that it shut from view the seat of fracture. Had it not been for this it would long since have superseded all splints. The cautious surgeon cannot be satisfied with anything which prevents frequent inspection. Take the case which I am reporting. Would any judicious practitioner have been satisfied with a permanent inclosing of such an ankle?

The Bavarian dressing allows the patient the greatest freedom of motion in bed; he may rest upon his side when he tires on his back, without danger of disturbing the fragments. The limb may be suspended, if desired, by a simple hammock, a sling of muslin placed under the leg and fastened above.

Another of the merits of this plan is well shown in a patient whom I am now treating. He entered the house with a compound fracture of the tibia and great contusion of the foot and ankle. The movo-amobile plan was adopted. In a few days it was apparent that the greatest injury had been done to the foot; violent inflammation soon set in and gangrene threatened. The bandage was cut away from the foot, allowing it freedom from restraint, while the part around the fracture was retained intact. The fragments were thus kept in position while I treated the sloughing foot. With any other apparatus the best position of the fracture would have had to be sacrificed, the limb have been freed from restraint while attention was being given to the endangered part. The gangrene is now circumscribed, the inflammation is subsiding, and the swelling and tension in both leg and foot are gradually and surely becoming less and less every day.

Here was a case that could only have been treated with the fracture box, as the injury to the soft parts was severe, and as the fracture was an oblique one, deformity, if the limb should have been saved, would have been the legitimate, or at least the looked for result; for in the fracture box no extension can be maintained sufficient to prevent oblique fragments from overlapping.

Let me give some reasons why this must supersede all other dressings for fractures, great or small, simple and comminuted:—

1. If applied when the fracture is properly adjusted, shortening cannot occur. Reduce the fracture, place the limb in its normal position, apply the dressing, and deformity cannot follow. Short femurs must disappear and crooked limbs be no more seen in the land, to the disgrace and scandal of the profession.
2. It fits the limb as completely as the immovable.
3. It is the most movable; the most easily adjusted of all efficient appliances.
4. It gives the patient most comfort, by keeping the fragments positively at rest.

5. It allows the patient most freedom of movement, when in or out of bed.

6. It allows frequent inspection of the seat of fracture, without disturbing the fragments. It is properly the "movo-amobile" splint.

7. Like the immovable dressing, when faultlessly applied, it prevents undue swelling, and in this way promotes repair.

8. It hardens in a few minutes (three), while it requires, as all know, from two to forty eight hours for other forms of immovable dressing, such as starch, dextrine, flour and white of an egg, etc. This one advantage can hardly be over-estimated. The surgeon is not compelled, during the drying process, to trust his case to an assistant, or to binding the limb to a board, with either of which the encasing is liable and likely to get deranged, and the fragments to become mal-adjusted.

9. For compound fracture, where drainage is necessary, traps are easily made in it.

10. Its cheapness for dressing a fracture of the thigh; the expense would not reach one-half of one dollar.

IV. FRACTURES AND DISLOCATIONS.

The Antiseptic Treatment of Compound Fractures.

In a lecture by Prof. VOLKMANN, on Compound Fractures, reported in the *Medical Times and Gazette*, November 24th, 1877, he gives the following directions for their antiseptic treatment:—

The first dressing decides the fate of the patient and the course and issue of the wound. All counter-incisions must now be made and drainage-tubes put in; loose splinters of bone must be removed, and the fractured extremities put into position; any little sharp projections may be rasped away; and the wound then must be completely disinfected. If this is done thoroughly and with care, the knife need never be taken into the hand again, however long the healing may require; nor will any further drainage-tubes be required, though possibly some small bits of necrosed bone may require removal; but this should only be done when all danger to the patient is past and over. Here is ample ground for doing the first dressing with the very greatest care, and with the most pedantic minuteness. We must not hesitate to bestow half an hour, or even three-quarters of an hour, if so much be necessary.

I do not generally undertake this first dressing in the ward itself, but in a special operating theatre. The floor is asphalted, and provided with a drain and waste-pipe, which allow a very free use of water and carbolic acid; we are well provided also with irrigators and douches, disinfected sponges, and a plentiful supply of linen bandages, and instruments. The patient is generally chloroformed, and then a thorough cleansing of the injured part and of the limb with soap and water, scrubbing-brush, and razor (if needs be), etc., can be conveniently carried out. In all cases the wound is enlarged sufficiently to admit the finger freely, or to allow of the seat of fracture being seen when the soft parts are retracted. The finger having been introduced, is made to cleanse (with a stream of carbolized water) the wound and all recesses opening out of it; every trace of coagulum is to be carefully washed away. If there are any deep pouches they must be incised, and preferably so at the

extremity of the *cul-de-sac*, in order to thoroughly drain them. Especially, too, in any places where the skin is separated from its subcutaneous attachments, must incisions be made here and there, as circumstances seem to require, in order to let out any blood, whether liquid or partially coagulated, which may have collected, and drainage-tubes must also be introduced. Any muscular shreds which may have been too severely bruised may be at once removed with scissors.

If the wound is situated so as not to offer a free and easy outlet for the secretions, a counter-opening at some convenient place must be made, and a drainage-tube inserted.

All loose splinters must be carefully removed; such larger ones, however, as are firmly adherent to the periosteum may be left, care being taken not to loosen their periosteal attachments. If there are sharp projecting ends, round them off with the bone forceps. Be careful that there are no portions of muscles between the broken ends of the bone, as they prevent union; indeed, they are the most frequent cause of protracted consolidation, and of "ununited" fractures (pseudarthroses).

Having got thus far, the wound may once again be well washed out with carbolized water, and the remaining part of the dressing must be carried out under the carbolic spray.

First of all, the wound itself and its surroundings are covered with a thick handkerchief-like pad of carbolic gauze. I prefer this to the "protective silk" for the first few days; for the fifty to a hundred layers of gauze which are thus lying on the wound readily absorb both any blood and wound secretions which may flow out. Then upon this comes Lister's dressing proper, which I need not here further describe.

I generally change this first dressing on the following day, or on the day but one after, at latest, in order to see whether all is going on properly, and whether the drainage-tubes are *in situ* and acting properly. Subsequent dressings are done every second, or third, or fourth day, according to circumstances; so soon as there is no further secretion from the wounds, after freely squeezing the limb, I remove the drainage-tubes. This is generally done about the third or fourth day.

The antiseptic dressing must be continued until the coagula filling up the wounds have become organized, or until their place is taken by granulation tissue. Sometimes the long-continued contact of carbolic dressings gives rise to a dermatitis. In such cases the skin may be gently rubbed with some antiseptic oil or ointment—such as boracic ointment—which will protect the skin, and still be antiseptic. In cases where the carbolic treatment disagrees radically, a constant irrigation with a solution of salicylic acid in water, as proposed by Thiersch, may be carried out.

Operation for Ununited Fracture of the Femur.

Mr. Reginald Harrison, F.R.C.S., Surgeon to the Royal Infirmary, Liverpool, writes to the *British Medical Journal*, January 19th, 1878, the following case:—

Austin Zinc, a seaman, aged 26, was admitted into the Infirmary, under my care, on July 26th, 1875. From the patient's history, it appears that, on April 18th previously, while at sea, he was struck by the sea, in a gale, and thrown violently against the side of the ship. It was found that he had sustained a fracture of the thigh. The captain of the ship put a long splint on him, and he was treated as well as circumstances would permit. He was subsequently placed on a steamship, for conveyance to England, where he had the benefit of the attendance of the surgeon of the ship, who appears to have done the best to obtain union.

On his arrival in England, on July 23d, it was found that no union whatever had taken place, and he was consequently transferred to the Infirmary at Liverpool, for further treatment.

Upon examination, I had no difficulty in finding a fracture of the femur at about the junction of the upper with the middle third. The fracture was oblique, and the ends were widely separated, the upper fragment being readily felt beneath the skin in front, while the lower fragment was deeply embedded among the hamstring muscles. There were two inches and three-quarters of shortening. There was no union whatever.

The limb was placed on a splint after friction had been employed, and was kept absolutely at rest for some weeks. Other means were resorted to, including the introduction of a tenotomy-knife to the end of the bone, violent percussion, and friction, but all without avail. No union, or even any sign of reparative action, could be excited. The patient became very weary, and begged to have his limb amputated. On January 4th, 1876, with the assistance of my colleague, Mr. Banks, I performed the following operation, the patient being placed under the influence of ether. I made an incision on the outer aspect of the thigh, about six inches in length, and sufficient to enable me to reach the fractured ends of the bone. By means of a small saw and a gouge, I completely bared the lateral aspect of *both* fragments, each of them to the extent of what they overlapped. After the opposing lateral surfaces of this oblique fracture had been most completely bared, I then passed round both fragments a stout piece of ordinary copper bell wire, and a second piece at an interval of about an inch and a half. Having placed the wires in their proper relative position, I gradually screwed them up until the bones came into a position similar to that of a splice in a fishing rod. Having thus screwed up the wires, I had the satisfaction of finding that they held the ends of the fracture in close and firm apposition.

To prevent any slipping, I then passed through the bones, midway between the two wires, by means of an Archimedean drill, a drill-head; this had the effect of completely fastening the two opposing portions of the fracture together. The wound was closed by wire sutures, the other end of the drill-head projecting through the wound. The limb was then placed on an outside interrupted splint, and the patient removed to bed.

Bleeding was entirely controlled during the operation by means of Esmarch's bandage placed round the groin. The operation was followed by some slight febrile reaction; but, considering the severity of the operation, it was remarkable how little the patient suffered. The chief pain was referred to the position of the drill-head, the slightest touching of which occasioned severe and deeply felt pain. On January 8th the pain referable to this drill-head was so great that I removed it, fearing that it might set up in the bone an undue amount of inflammatory action. The removal of this was followed by complete comfort. The suppuration was not excessive, and in the course of a few weeks the wound was completely filled in with healthy granulation. The wound was not dressed antiseptically. On March 8th, as the wires appeared now to be sources of irritation, I determined to remove them. I had the patient placed under ether. I then passed my finger through the mass of granulations down to the wires, and, by means of a curved pair of cutting pliers, severed and withdrew each wire. This was done without difficulty, and I had the satisfaction of feeling that union was complete. The patient was kept in bed till May 4th, when he was allowed to get up, union being perfectly complete. The

amount of shortening was not greater than that observed on his admission; viz., very nearly three inches.

The patient was sent to the Convalescent Hospital at Woolton, where some very small fragments of bone were from time to time exfoliated. On July 10th, 1877, the patient called at the Infirmary to see me. His limb was perfectly firm. He informed me that he had been out to Callao as a seaman, and that he was again leaving on the following day for the same place. Except the shortening, which now appeared to give him little inconvenience, the movements and form of the limb were all that could be desired. The case, in fact, turned out as successfully as I could wish.

The Causes and Treatment of Delayed Union in Fractures.

Dr. JAMES CATTERMOLE, L.S.A., of London, Ontario, says, in the *Canada Lancet*, March 1st, 1878:—

During a railway accident on the 3d of February, several years ago, Mr. C., aged thirty-two, sustained fracture of the humerus in its upper and lower third. The patient was promptly attended to by two surgeons of acknowledged ability, who, after a brief period, duly put the limb up in splints. At the end of eight weeks a fair amount of union had taken place in the fracture near the elbow, but none whatever in that of the superior third of the bone. A starch bandage was now applied for some weeks, but without benefit. The surgeons now deemed it necessary to scrape and puncture, subcutaneously, the ends of the bone with a tenotomy knife. This not answering expectations, a seton was passed between the ends of the bone. About five months after the accident, Mr. C. came under my care, wearing the seton, which I allowed to remain for a time, trusting it would finally produce sufficient local action. In this, however, I was disappointed, and at length determined to try the time-honored plan of friction. To accomplish this, a weight of sixteen pounds was attached to the hand and wrist of the lame arm, which had the effect of bringing down the lower fragment into apposition with the lower end of the superior. On every second or third day for a fortnight, gentle swinging of the weight was used each time for about fifteen minutes, or until some uneasiness was produced. This mode of treatment was continued, gradually increasing the force of the friction, for four or five weeks longer. For the last three weeks an operation every fourth or fifth day was deemed sufficient. The arm had now become somewhat swollen and painful, with just sufficient increased vascular action to hold out more promising results. A long, heavy, hollow, box splint, fitting the back and sides of the limb, was now applied, extending from the shoulder to the hand, the whole allowed to hang unsupported, so that the weight of apparatus, forearm and hand, might keep up sufficient extension for the adjustment of the upper and lower fragments. The arm was left undisturbed in this splint for six weeks. On removing it, we were gratified to find the stubborn fracture had firmly united, and the patient shortly afterward returned to active employment on the railroad, where he had worked steadily for just thirty days, when he was again overtaken by misfortune. On going home from his work in the darkness of the evening, he unluckily fell into a cow-catcher, and broke the middle third of the same unfortunate bone, nearly three inches below the old fracture of the upper third. But little trouble was experienced by this last affair, as, under the ordinary treatment, firm union took place in forty-five days, and again the patient resumed his duties on the road, and still remains there, a much esteemed employee of the same company.

Notwithstanding the amount of satisfaction experienced on the termination of cases similar to the above, yet nothing can be more vexatious to the surgeon than the occurrence of delayed union, in any case of fracture entrusted to his care. The limb may have been quite properly put up, and from time to time sufficiently examined without unnecessary disturbance; in every way treated secundem artem; the patient in apparent good health; the case, in fact, promising recovery in the usual period allotted for cure. The dressings are removed: the parts present a fair appearance as to position; ends of fragments apparently in apposition; the contour of the limb symmetrical; but, on handling it, motion is discovered, and, to the dismay of the surgeon, he finds that he has an ununited fracture to deal with. Soon an unlooked-for result may occur to the most skillful practitioner, and that, indeed, without any obvious pre-existing condition to render him apprehensive of non-union. In most systems of surgery, many, possibly too many, causes are assigned for the failure of ossific deposit, and the long list of causes is followed by one still longer, of remedies, or plans of treatment. Considerable experience has led me to believe that the causes of deficient deposit are far more limited than surgical writers are in the habit of enumerating. Of these conditions, constitutional and local are the principal. From the first we may have general physical debility and consequent atony of the injured parts; a lack of vascular action and supply, not only in the broken bone, but also in other parts of almost paramount importance, namely, the structures and soft tissues immediately surrounding the broken fragments. As to the local causes; occasionally it may be somewhat difficult to arrive at their precise nature, but, as Gross observes, it is not improbable that their influence has been greatly exaggerated.

Some writers would fain persuade us to believe that the absence of reparation in these cases altogether depends on the relative situation of the fracture and nutrient vessels of the bone, as, for instance, that fractures in the upper part of the shaft of the humerus fail to receive sufficient nourishment in consequence of the downward course of the nutrient arteries, and in like manner we are given to understand that when the lower ends of the bones of the forearm, or femur, are broken, that we must expect union to be more or less delayed, because the arteries of the bone take their course upward, and thus forsake the damaged parts. But it is certainly fortunate as well as true, that in spite of the opposite course of these nutrient vessels, union is generally obtained in very good time. The soundness of such a theory is very questionable, for many of the best practical surgeons tell us that they have met with cases of delayed union where the fractures have occurred in those parts of the bone usually traversed by the nutrient arteries, about as often as in parts which are said to labor under the disadvantages of deficient supply, and that, in either situation, the length of time required for final and complete consolidation has been about the same. With this statement I fully concur, after experience in, and observation of, these matters for the last forty years. Norris, in his analysis of forty-one cases, found that twenty-seven were in the direction of the nutritious arteries, and only fourteen in the parts supposed to be less nourished.

In these unpromising cases, it is always expedient to obtain consolidation by the safest and most simple method, studiously avoiding all extreme measures, for the mere irritation produced by a seton will occasionally lead on to diffuse inflammation, suppuration and very disastrous results. Excision is still more hazardous; for, although the operation has been successful in some cases, in others it has proved

fatal to the patient; moreover, instances are recorded in which these operations have been well borne, but yet entirely failed to cure the fracture.

Celsus, in his eighth book, says: "If the fracture is of long standing, the limb must be extended to create a fresh injury, the bones must be separated by the hand, and the surfaces may be roughened by rubbing against each other, and if there be any fatty substance it may be abraded, and the whole may become as it were recent."

The plan of the old Roman doctor has been much too sparingly employed, even down to the present time. Some surgeons of the present day know its value, and generally adopt it in the treatment of their cases; but the majority incline more to the high pressure system, and regard the good old plan as too slow and tedious, and though it may appear so to them, it is certainly, on the whole, by far more reliable than any other method, when patiently and properly carried out, having in very many instances succeeded after all other means had utterly failed.

On Passive Motion in Fractures Involving the Joints.

Dr. J. T. HODGEN says, in the St. Louis *Medical and Surgical Journal*, June, 1878:—

When called to a recent fracture involving any joint there is no more certain means of preventing anchylosis than by applying a plaster-of-paris splint to the part and allowing it to extend sufficiently beyond the site of fracture to secure perfect rest. The bandage should be made in the usual way, *i.e.*, recently heated, finely powdered plaster should be rubbed into the meshes of strips of cheese cloth and then loosely rolled. These should be placed in tepid water until wetted. The fragments adjusted as nearly as possible, the limb placed in proper position, the prominent bony points covered by cotton wool, and then the rollers should be lightly applied, never so as in the least to impair the circulation at the moment of application.

Applied in this way every part of the surface is equally in contact with the splint and equally supported by it. The limb should be elevated, to aid venous return, and the patient carefully observed during the first 24 hours. The distal part of the limb should be left uncovered by the dressings, that their condition may indicate the least disturbance of venous return. Generally, it will be found that the dressing is not only borne without suffering but gives a sense of comfort. Occasionally it happens that swelling in the distal parts occurs and it is necessary to cut the bandage; if so, it need not be entirely removed, but the limb may be left in its well-fitting bed, unless the swelling occurs to such an extent as to make the pressure unequal.

If in any case the first dressing can be allowed to remain, we have the best possible condition for preserving the motion of the joint. On the other hand, if passive motion is made while the increased sensibility indicates a degree of exalted nervous sensibility, it is much more likely that passive motion will increase than diminish exudation, and thus increase rather than diminish the probabilities of anchylosis.

After the union has been accomplished at the site of fracture, and the increased vascularity has subsided, and anchylosis remains, from the presence of inflammatory adhesions, then motion will accomplish here what stimulating applications do for opacities of the cornea; enlarge the blood vessels, increase the blood flow, and hasten the removal of inflammatory products.

1st. The stiffness of joints resulting from suspended function, if persistent, should be treated by passive motion.

2d. During the existence of inflammation from a fracture involving a joint, passive motion can only result in harm.

3d. Passive motion after the union of fractures involving a joint, and after the subsidence of inflammation, will aid in the restoration of function.

4th. The time that passive motion should begin cannot be named in weeks or months, but should be determined alone by the condition of the part.

5th. Perfect rest and equable pressure are the best means of preventing anchylosis resulting from inflammation, in case of fractures involving joints.

I will add that I began the use of plaster-of-paris dressings in 1862, and have continued to use them to the present time, in cases involving the knee, ankle and elbow-joints, and with the purpose of preventing motion and securing uniform pressure, and think I have never had a case injured by such dressing.

I will further add that I have not made passive motion in any case of fracture involving a joint, until the union of the fracture was firm and the inflammation had subsided. In the earlier part of my practice I expended a good deal of time in trying to devise a good elbow splint that would admit the passive motion, but never succeeded in applying a hinged splint, so that the centre of motion in the splint and limb corresponded so exactly as to permit motion at the joint without a degree of disturbance at the site of fracture if near the joint. To day I believe it fortunate for my patients that I did not succeed, for the reason that I believe that motion, during the treatment of a fracture, insures rather than prevents anchylosis from inflammatory deposit.

V. AMPUTATIONS AND RESECTIONS.

The Operation for Excision of the Knee Joint.

The following suggestions are made by Mr. JOHN FAGAN, in the Dublin *Medical Journal*, November, 1877:—

In making a selection, three points have to be taken into consideration—viz., the state of the constitution, the condition of the joint, and the age of the patient. A careful examination of all the organs should be made, and the surgeon influenced by the result.

The more healthy the constitution, the more favorable is the case for the operation.

Regarding the condition of the joint, it is found that the operation is most fatal in cases of injury and acute disease.

In the treatment of the subacute or chronic disease as ordinarily met with, the nice point for the surgeon to decide on is—in which stage of the disease, and under what circumstances, should he adopt the expectant method, in which to recommend excision or amputation. We may here dispose of the two extremes of this condition. In the initiatory stage the expectant is the best and only justifiable means of treatment; while in the advanced condition of the disease, where the bones are involved beyond the epiphysis, the soft parts degenerated and riddled with sinuses, and the constitution depraved, amputation is the only mode of treatment that ought to be entertained.

The cases that require most careful consideration before recommending any particular line of treatment, are those holding a middle position, of which there are two kinds. One, generally known under the name of "white swelling," has been fully described by Sir B. Brodie.

In this condition the disease begins in the synovial membrane, is usually idiopathic, progresses silently; in many cases there is an entire absence of painful symptoms, and the constitution is generally depraved. I have frequently met with such, but have no experience of the treatment by operative interference.

Mr. Barwell recommends a stimulating treatment—such as friction, passive motion, and iodine injections. I am disposed to agree with Mr. Holmes in advocating excision in this class of cases, where the bones are not very extensively involved, and the constitution fairly good.

The other condition of joint belongs to a class, of which the cases I have shown you this evening were fair examples, when first brought under my notice, the symptoms and pathological conditions being somewhat alike in all of them.

The disease, originating in some trivial injury, manifested itself as an articular osteitis — the cartilages, synovial membrane, and ligaments being secondarily involved.

I may here remark, that if more care was bestowed on the simple joint injuries occurring to children—by twists and blows, falls down stairs, off chairs and tables—we would witness fewer painful cases of disorganized knee joint than present themselves so frequently at our hospitals.

The course I pursue in cases similar in their nature to the ones I have shown you, is as follows:

If the symptoms are not very urgent and point to the disease as limited to the articular ends of the bones, or involving but slightly the other joint structures, I adopt in every case the expectant method; if, after a fair trial of this, the condition is much the same, or but slightly improved, I am mainly influenced in the further treatment of the case by the social condition of the patient.

Among the well-to-do classes the patient has all the advantages of suitable appliances, is placed under skilled supervision, and, most important of all, the courses of treatment can be continuously carried out under the most favorable hygienic conditions.

Contrast this with the case of the child of the poor person similarly affected. If treated in hospital he may be discharged after a lengthened stay, very much improved, or, to all appearance, cured; but want of care on the part of ignorant parents, a too early return to his employment or his active games, together with want of proper nourishment for his originally feeble constitution—all tend to light up again the smouldering embers of the disease, and he returns to hospital a second time, in a worse condition than the first.

While in the one case there is a fair prospect of a cure by natural processes, after a lengthened period of treatment, in the other such prospect is but very slight, and I believe that for it excision of the joint before the disease has advanced too far, and while the constitution keeps good, is the best method of treatment to adopt.

No matter how favorable the surroundings, if after a fair trial of the expectant method the symptoms increase in severity, and the condition of the patient be gradually becoming worse, both as regards the local affection and the general constitution, excision of the joint is, I believe, the best and only line of treatment that should be recommended.

Amputation of the Forearm for Epithelial Cancer, at the Age of Eighty-six.

Dr. S. L. LEE, of Pioche, Nevada, reports the following case to the *American Medical Bi-Weekly*, March 2d, 1878 :—

On the 4th of January last I was consulted by an old lady afflicted with an epithelial cancer, involving the dorsum of the hand and wrist. The integrity of the muscular and ligamentous structures was completely destroyed in this locality. The hand was flexed upon the palmar aspect of the wrist by means of the antagonistic muscles.

I called Dr. C. F. Philson in consultation, and after carefully weighing the chances for and against recovery in case of an operation, we resolved to amputate the forearm, which resolution we carried into effect on the 5th instant, at eleven o'clock. I adopted the flap method, the lower border of the dorsal flap being carried downward to a line two inches above the upper margin of the cancer. We had five arteries to ligate; but little blood was lost, and she rallied well from the anæsthetic. (Billroth's mist.) The ligatures were removed on the 25th and 28th, and by the 5th of February the wound had completely healed, giving her a well-rounded stump. On the 8th of February she returned to her home, forty miles distant, in a farm wagon, standing the rough trip exceedingly well. The only feature of this case of especial interest to me, and my only reason for reporting it, is the great age of the patient, her wonderful endurance, and the happy result. She is a native of North Carolina, was born in 1792, making her, at the time of the operation, eighty-six years of age; and from the date of the amputation until she was discharged cured never lost a meal, and barring a slight endemic attack of diarrhœa, experienced neither physical nor mental depression. Have your readers knowledge of any person of as great age surviving a capital operation?

Disarticulation at the Hip.

Toward the end of 1877, M. VERNEUIL communicated to the Academy of Medicine in Paris a paper on this subject, with remarks on the operative proceeding and mode of dressing, an abstract of which we give from the *British Medical Journal*, April, 1878. This paper became the starting point of a long discussion, in which all the surgical celebrities of Paris have in succession taken part. Disarticulation of the hip, says M. Verneuil, in his memoir, will always involve a grave prognosis, on the one hand by reason of the dangers inherent to the conditions which necessitate it, on the other by reason of the traumatic accidents to which it is exposed, by reason of the extent of the wound. "Death," he adds, "is sometimes immediate, on the operating-table itself; sometimes rapid, in the first five hours; sometimes approximate, within two hours. At other times, it occurs after the first seven days, or later. Early deaths are by much the most frequent, ordinarily caused by the hemorrhage which precedes, accompanies, or follows the operation, and which proceeds not only from the femoral artery, but also from the branches of the *gluteal* and the sciatic arteries. Later deaths are most frequently the result of blood-poisoning." M. Verneuil then attempts to discover, first, what is the mode of operation most calculated to realize economy of blood; and, second, what is the mode of dressing which affords the best precaution against the accidents of infection. To reduce the loss of blood to its minimum, the best method, according to M. Verneuil, consists, first, in pushing back into the system the blood contained in the

limbs, by means of the elastic bandage; then removing the thigh as if one were proceeding to remove a voluminous tumor, by exposing and tying the principal vessels before dividing them. This method of proceeding was followed for the first time by M. Verneuil, in 1864. To prevent septicæmia in its diverse forms, acute, chronic, or pyæmic, M. Verneuil considers it essential to prevent the discharges from stagnating in the wound, too favorably disposed to retain them; and useful, if it be possible, to prevent changes in those fluids. Primary union, adopted by all surgeons and held in view by all the inventors of operative methods, is, he considers, unfit to fulfill the two former conditions; it favors rather the alteration and retention of the fluids, even if only in the cotyloid cavity. It ought, he advises, to be abandoned. For the same reason, M. Verneuil abandons the lateral oval proceeding, and the operation by the anterior flap, which favors retention of the fluids, and prefers an open wound largely exposed, such as he obtains by the "racquet" method. The following are the different stages of this procedure. In the first stage, an incision is made in the skin, a vertical incision from 2 to 2.4 inches, starting from a finger's breadth from below the crural arch; and from the inferior extremity of this is made an incision which crosses obliquely the external surface of the great trochanter, and is continued along the gluteal fold. The second stage consists of opening the sheath of the vessels; preventive ligature of the femoral artery above its bifurcation, and ligature of its two branches *en masse*, to avoid the reflex hemorrhage by anastomosis; and section of the veins between the ligatures. The third stage consists of section, with the bistoury, of the muscles of the anterior region. The vessels compressed in the muscular interstices are only divided after previous ligature. In the fourth stage, the joint is laid open. The fifth stage consists of division of the posterior muscles and of the vessels, with the same precautions. The operation may be terminated in half an hour. The wound is open, and shaped like a hollow cone. As to dressing, M. Verneuil employs small squares of tarlatan soaked in water, on which are applied small feathery masses of charpie dipped in antiseptic liquids, which are covered with a thick layer of cotton wool. The whole is kept in place by a piece of oiled silk as simply arranged as possible. The dressing (*à la Lister modifié*) is rearranged every morning.

VI. LOCAL SURGERY.

(*a*) HEAD, NECK, AND CHEST.

Successful Treatment of Fungus, or So-called Hernia Cerebri, by Permanganate of Potassa, under Pressure.

Dr. H. O. HITCHCOCK gives this interesting case, in the Detroit *Lancet*, January, 1878:—

J. J., an intelligent boy, seven years old, was kicked on the 9th of April, 1865, by an unshod three-years-old colt. The blow was received just above the right eye. When seen by Dr. Hill, an hour and a half after the injury, the boy was completely insensible; pulse was just perceptible, about forty to the minute; respiration extremely slow; surface and extremities cold.

The sharp edge of the colt's hoof had cut through the soft parts covering the

skull for nearly two inches along the superciliary ridge, and crushed the os frontis into several fragments, driving them back upon and into the brain substance.

Since these fragments appeared to be so firm that they would require considerable force to remove them, and as the collapse of the patient was so complete, the doctor temporarily closed the wound, and ordered a dressing of tepid water.

The next day, April 10th, the patient had rallied during the night, had recovered almost entirely from the concussion; consciousness and intellection good; pulse eighty, of good volume. Patient complained of some pain in the forehead and right eye. I saw the patient, in consultation with Dr. Hill, at noon of the same day. Skin was then hot and dry, and the pain in head had greatly increased, and there were signs of compression. Two or three rough-edged pieces of the skull were removed, and a third, of considerable size, was elevated. One fragment removed was a portion of the superciliary ridge and a portion of the roof of the orbital cavity.

Shreds of torn membrane were removed, with nearly half an ounce of broken down brain substance. The edges of the wound were approximated with silver sutures, and the wound dressed with diluted tincture of arnica.

Dr. Hill's notes show that the patient did well, with no untoward symptom, until the 15th, when, through a portion of the wound left open for drainage, a small rounded tumor was noticed. Pulse one hundred, and less full. Appetite still good.

April 16th, patient was cheerful—even playful; appetite good; pulse one hundred. "The tumor in the wound is increasing." Lips of the wound were now approximated by adhesive strips, and head dressed with a compress and roller. In spite of this treatment by compression, the tumor continued to grow, until it protruded above the surface, bleeding when handled.

On the 22d I saw the case again, in consultation. A fungous-looking tumor protruded from the wound in the scalp, about the size of half a hen's egg, bleeding when handled, and distinctly pulsating with the brain. The character of the tumor was unmistakable—a fungus cerebri.

To be sure that there was no superficial abscess at the base of the tumor, I punctured it with a small trocar, with negative results, except a little blood.

I directed that a folded cloth, saturated in a solution of the permanganate of potash, ten grains to the ounce, should be applied to the tumor, and then a graduated compress, the whole to be secured by a roller bandage, which was to be tightened just as the patient could bear it. A little too great pressure by the bandage at once produced symptoms of brain compression.

On the 25th, the tumor having increased somewhat, I directed that the solution should be increased in strength to twenty grains to the ounce, and same treatment to be continued, together with a more supporting and nourishing diet.

On the 30th the patient was reported as "remarkably bright; says he feels as well as ever; sits up, and has his playthings and little books; mental faculties entirely perfect; tumor considerably less than at last visit; can easily be compressed within the skull."

On the 4th of May I dissected up the edges of the wound, and revivified them, and brought them together with silver sutures and adhesive strips, and applied a compress with a roller bandage. The case did well, and on the 16th Dr. Hill discharged the patient.

I have known this patient ever since that time, and can testify that, in the estimation of his parents and all who know him, his mind and his disposition have *not* suffered at all from the accident and its consequences, related above.

Trephining for Fracture of the Skull.

Mr. E. S. O'GRADY, of Mercer's Hospital, Dublin, contributes several cases to the literature of this contested subject, in the Dublin *Journal of Medical Science*, March, 1878.

The one quoted is a striking example of the well-known difficulties which occasionally occur in correctly measuring, in the first instance, the true nature and severity of these accidents; it illustrates, too, how readily the gravest forms of head injury may, by the total absence of symptoms, be overlooked, and hence the need for thorough and cautious examination under all circumstances (especially when dealing with patients in a condition of intoxication) where fractured cranium could possibly occur.

T. N., a laboring boy, fifteen years old, came to the hospital on the afternoon of the 31st of March, 1868, to have a cut on his head dressed. This had occurred, he said, by his falling down on the previous day, "head-over-heels," into a saw pit, his head striking against a pointed stone lying at the bottom. At the time he was not stunned nor much hurt. There was a scalp wound, an inch and a half long, on the left side, running from the locality of the posterior superior angle of the parietal, in a direction downward and forward. Digital examination, which was reluctantly permitted, the patient regarding the wound as insignificant, found at the bottom of it a depression in the bone, almond-like in size and shape. The lad, who had walked into the hospital by himself, was perfectly conscious, free from pain, and, save a pulse of 112, had no indication whatever of any departure from health; he said he felt quite well, and it was with considerable difficulty he allowed himself to be retained in the house till his friends could be communicated with. He was placed in a quiet ward, with cold to the head, and some purgative medicine given; after this acted a few grains of true James' powder were directed to be taken every three hours. For seven days all proceeded in a most satisfactory manner; the pulse came down steadily to 80; the wound granulated, and was healing nicely, the patient appearing to be, and saying he felt himself, in excellent health.

At visit on the morning of the 8th day subsequent to admission something suspicious-looking in the general aspect caught attention; the lad was heavier, and duller far than usual; he was moody and silent, with a slightly contracted brow, and frequent nervous movements of the fingers; ten grains of calomel followed by a castor-oil draught were given, and in due course acted naturally. During the day no noteworthy change was observable till about half past five o'clock, when he began to get heavier and more stupid; two hours later he had become nearly insensible, but when told in loud tones to open his eyes or put out his tongue, made slight indications of attempting to do so. The pulse remained unchanged from its standard (80) of the past few days. The pupils symmetrical, and acted, but sluggishly so, to light; marked twitching of the fingers of the left hand, together with distinct spasmodic jerkings at the right upper and lower extremities were now present; this condition was most marked in the arm; muscles of the face and neck not affected. A brisk turpentine and assafœtida enema failing to effect any change, it was determined to postpone operating no longer. After shaving the locality the injured bone surface was fully exposed by opening up the wound and crossing it at right angles with a second incision; in addition to the large depressed piece the bone was seen to be extensively fissured and comminuted; four applications of the trephine enabled all necessary portions to be removed. The large piece of the internal table was

much depressed, and deeply indented the dura mater. Beyond the indentation mentioned, the exposed surface of dura mater presented nothing special in its appearance.

After the scalp flaps were replaced they were lightly supported by strips of adhesive plaster, and an ice bladder applied; one grain of calomel, with two grains of true James' powder, were prescribed, to be taken every third hour. It was noted at the termination of the operation, which was done without chloroform, that a considerable amount of consciousness had been already regained; the spasmodic phenomena had also ceased, and it may be mentioned now that these did not again occur.

On the next morning the patient was reported to have slept most of the night; he had become quite conscious, felt well and free from pain. Pulse 98.

On the second morning there was some œdema, equally well marked, on both sides of the eyelids; the bowels had acted freely. The interval between the powders was directed to be doubled. For some hours during this afternoon and evening much annoyance was caused by extreme acuteness of hearing; this passed away during the night. The patient had been kept confined to bed in the recumbent position, and limited to simple though nutritious dietary.

The progress of the case to recovery continued to be rapid and satisfactory. The mercury was dispensed with after three days. In less than a week the major part of the wound had healed and the remainder was granulating healthily. The edges were kept carefully supported and drawn toward one another by adhesive straps; over these, and corresponding to the opening in the cranium, soft graduated compresses of lint, suitably secured by head bandage, opposed the apparent tendency of the brain mass to here protrude. The patient, now able to be up and about, seemed in every respect in excellent health. The wound was virtually healed in a couple of weeks, though, owing to the escape of some minute scales of bone, cicatrization was not absolutely complete till the end of the fourth week. Exactly one month from the date of the operation T. N., was discharged from the hospital. Where the bone was deficient the pulsation of the brain mass could be seen, strongly heaving, and prominently raising the integuments, but no sense of inconvenience or annoyance was caused thereby to the patient, who stated that, to his own perceptions, his condition was in no way different to what it formerly was.

It can be affirmed that the sequel of this case continued to be in every way most satisfactory. The subject of it got employed in a mercantile house, as a species of under-clerk, having to act also as a messenger and collector of accounts. At intervals he occasionally came to report himself at the hospital, the last time not being many weeks since. He has remained in excellent health and free from trouble of any sort; his only cause of complaint being that he gets drunk too easily, and when intoxicated he has a tendency to be quarrelsome and "wicked," a condition quite the opposite of his tendencies when sober. This susceptibility to the influence of alcoholic liquors tends rather to increase than otherwise. The volume of the brain pulsation has lessened with time, but still continues to remain well marked, causing, however, as stated, no inconvenience whatever to the patient himself, who has abandoned wearing any form of protective pad or shield over the deficiency in his cranium.

On Injuries of the Scalp.

In the *Lancet* of January 26th, 1878, Mr. ERICHSEN reviews the subject of scalp injuries, explaining why, on account of the extreme vascularity of the part with its

serpentine vessels, anastomosing one with the other freely, and lying among dense granular fat that hinders their ready contraction, hemorrhage is necessarily profuse and often uncontrollable. Hence the care necessary in removing sebaceous and other tumors; and if from any cause hemorrhage should be difficult to arrest, Mr. Erichsen points out how easily acupuncture will effect the purpose. The reason why traumatic erysipelas of the scalp is more apt to arise than from wounds in other parts of the body, is the looseness of the areolar tissue on which the tendon of the occipito-frontalis lies, where pus often collects, owing to the pouch or bag generally found in scalp wounds: hence the necessity of drainage, and hence the reason why stitches in scalp wounds, by closing up the mouth of the pouch and hindering the escape of the matter formed, are followed by erysipelas. Mr. Erichsen repudiates all complicated artistic bandages in scalp wounds, believing them to be worse than useless.

The diagnosis between abscess and erysipelas of the scalp is clearly described. In erysipelas, the ears are red, swollen, and covered with blebs; in abscess, the occipito-frontalis muscle determines the limits of fluctuation. The wonderful reparative powers of the scalp are noted, and cases mentioned where large portions have been removed without harm.

The phenomena of true and false stunning are well described. Two persons are thrown out of a carriage; one is stunned, forgetting, on recovery, everything that happened a minute or two before losing consciousness; his companion is picked up, also unconscious, but can remember, on recovery from faint, all the minutiæ of the accident. The vastly different after-history of the two cases is clearly defined. The important question, "Is he drunk or dying?" concludes Mr. Erichsen's second lecture, and is answered by the important advice, "Wait and see; do not decide too hastily."

(*b*). NOSE, MOUTH AND THROAT.

Observations on Naso-Pharyngeal Polypi.

Mr. Wm. S. Savory, Surgeon to St. Bartholomew's Hospital, says, in a lecture quoted in the *British Medical Journal*, January 5th, 1878—

The form of tumor called polypus is more common in the region of the nares than any other part; here it varies in structure and site. While from their shape they all are properly termed polypi, some, and these are the most frequent, have a simple loose fibro-cellular structure, with much fluid in the meshes, the familiar mucous, gelatinous, or, as it is now termed, myxomatous polypus; some are firmly fibrous—fibromata; while others, consisting of the more immature elements of connective tissue, are sarcomata. I need not add that these several kinds of polypi vary in their nature; some are innocent, others are recurrent, or even malignant. Let us, however, be clear about this. Every one knows that even the simplest and most innocent, the common polypus of the nose, very frequently recurs after removal. It is apt to grow again and again, and its complete and final extirpation is at times a matter of very great difficulty; while even the sarcomatous polypus—the kind consisting chiefly of immature forms, the texture which emphatically suggests recurrence—may yet, provided it can be entirely removed, even to the base of its stalk, and the surface from which it grew destroyed, never return. Indeed, in these

polypi, beyond all other tumors, this seems to be a point of the first importance. When, after an apparently satisfactory removal, the nostrils again become plugged with the ordinary gelatinous polypus, either (which is only too likely) some fragment of the original stalk has been left, or other small polypi, which, having been compressed by the first, could not expand, as soon as they obtain space, rapidly fill up the nostril. I fancy these common polypi are more often multiple than they are usually supposed to be, because, after the entire removal of a large one with a typical shape and perfect stalk, I have often seen the apparently vacant nostril rapidly occupied by several very small and distinct growths; and for this reason it is always well to employ an astringent for some time after an operation. On the other hand, we see cases in which, when a polypus possessing a structure suggestive of very ugly inferences is cleanly and thoroughly swept away, it never recurs. Of course, there is a wide difference in the liability to recurrence of these various kinds, determined by their nature and independent of the mode of removal; and perhaps, a yet more important distinction, in the fact, that while the more innocent forms, although recurring for many years, are not wont to trespass beyond their original site, the worse forms are sadly prone to extend their base of growth, and to invade and occupy, without scruple, adjacent parts. They may grow from any portion of the surface, either of the nares, sinuses, or pharynx. They often, in their progress, expand, and sometimes even pass through bone and intrude on the brain.

Another fact which, in more than one way, is of great clinical importance, is that these several kinds of polypi are apt to spring from different parts, so that the situation of a polypus, or more precisely of the surface from which it grows, is strongly suggestive of its structure and character. Every one, for instance, knows how the common gelatinous polypus affects the turbinated bones, and how usefully, when we proceed to remove them, we are guided by this knowledge; whereas the polypi which occupy the pharynx are fibrous or sarcomatous, these latter springing far more indifferently from any portion of the surface of the naso-pharyngeal region. Their favorite sites are the posterior border of the nares, about the edges of the pterygoid plates, sometimes the margin of the septum or the upper wall of the pharynx, the under surface of the body of the sphenoid or basilar portion of the occipital.

Some one may perhaps ask why I have not mentioned cancer among the forms of polypi. Because I do not think that cancer, in its proper sense, forms the structure of polypi, strictly so called, whether nasal, pharyngeal, or naso-pharyngeal, to which form of tumors these remarks apply. You meet, of course, with cancer in the nose and pharynx. It will grow into and destroy those parts, but not as a polypus; not, I think, as a pyriform tumor with a well defined stalk, springing either from the mucous membrane or the fibrous tissue between it and the bone. The stalk of the firmer kinds of polypus is usually, indeed, directly continuous with the periosteum.

I must not enter at any length into the question of treatment of these various kinds of polypi. The principle is the same in all; to remove as cleanly as possible the whole of the growth, to detach thoroughly the base of its stalk, to destroy its roots, as some say. In order to secure its thorough extirpation, we do not think of attacking the bulk of the tumor; its neck and base are the parts at which we aim. We may grasp the pedicle with strong forceps, or secure it by a ligature, or use the knife or *écraseur*, or cautery, or carry out the principle in other ways; but the operation is never satisfactory when the polypus is brought away piecemeal, or torn and mangled. The simple object is, I repeat, to bring the whole thing away at once by its neck, and to leave a bare surface, with no fragment projecting beyond the level

of the surrounding mucous membrane. In the case of the more doubtful forms, it is well to cauterize the surface afterward.

The Treatment of Epistaxis.

Dr. Bolling W. Barton, of Baltimore, writes to the *Medical Brief*, January, 1878, his treatment of epistaxis, as follows:—

To stop bleeding from the nose it is not always enough to blow styptic or astringent powders into the nostrils; and injection of stronger agents, while it may stop the flow of blood, is often attended with very objectionable accidents. I believe that I once endangered the life of a patient by the injection of Monsel's solution into his nostrils. Some of the solution flowed back into the larynx and trachea, and produced most painful symptoms at the moment, and was followed by a degree of œdema of these parts which proved unpleasantly serious. The injection may have been done in a bungling manner, but even with skillful hands it is easy to see that such an accident might happen. Beside this, the injection of this liquid is almost certain to give rise to quite profuse salivation, and if it pass into the stomach, to vomiting, which is likely to undo all that has been done to arrest the bleeding. The last resort to which we flee when the simpler methods fail, that of sound and tampon, is certainly most efficient in stopping the hemorrhage, but is also a most troublesome operation if the patient should happen to be a peevish child. I have been told, also, that the presence of the tampon gives rise to peculiarly painful sensations.

In view of this heap of difficulties, I propose a simple method, to which the foregoing objections cannot be urged, and which has proved on three occasions all that could be desired in checking the nose bleed. I used the Monsel iron solution, but applied it with feathers. The wing feather of a common fowl is most readily gotten. The barbed end, of course, is dipped into the solution, and pushed rapidly back into the nostril, and turned once or twice in the fingers. In a few seconds the feather refuses to yield to pushing or pulling, showing that a firm clot has been formed. The projecting end is clipped so as not to inconvenience the patient, enough of it being left to be easily seized and removed when required. If one feather should fail to stop the blood, a second may be introduced in the same manner alongside of the first one. At the end of a certain time the clots slough away from the nasal walls, and may be removed without trouble.

This is a very simple procedure, and I doubt whether it will fail when any other method would succeed.

Causes of the Decay of Teeth Among Americans.

Dr. James B. Hodgkin, of Baltimore, says, in a lecture published in the *Virginia Medical Monthly*, May 18, 1878—

The loss of teeth by caries is peculiar to the human race, and peculiar only to the more civilized part of that race, and peculiarly to the Anglo-American. I am not prepared to say to what extent Europeans lose their teeth, but the impression prevails that they do not do so to the extent that we do; and as for the semi-savage and barbarous tribes, they are exempt from this curse, in the main.

I have referred to the order in which the teeth are erupted—and have indicated that it is in the order of their development. We have seen further that these processes date far back in the history of the yet unborn child. In that mysterious evolution of which we know so little—in that occult process of the "growth of the

bones in the womb of her that is with child," so very early in the life of the fœtus as to excite incredulity when the statement is made to the unscientific—the germs of the deciduous and the permanent teeth are formed; and before birth their character is more or less firmly fixed for good or for ill.

In this wonderful laboratory of nature, where pulp and dentine, enamel and cementum are formed, where calcification is progressing, and "form and substance" are being given to organs which are as yet in embryo, a slight cause may disturb the balance of forces and effect the nutrition of these teeth.

A nervous, overworked man, with feeble muscles and imperfect digestion, with brain force up to its highest tension, dyspeptic and prematurely old, comes from a day of harassing care, at night to share the bed of a hysterical, flabby-muscled, anæmic woman, all of whose organs are out of tone, and whose life-force is exhausted in her monthly periods. Too little of a woman to be other than passive under his conjugal embraces; too feeble for anything except the unfortunate inevitable conception which takes place, altogether unfit for the conditions which maternity imposes, this make shift of a woman, this abortion of a true mother, carries in her for nine months the babe which she, at the fullness of time, brings, all immature and imperfectly developed, into the world. The history of those nine months is better known to you than to me. The utter want of tone, the absence of all elasticity, the yielding up to languor and debility, the defective nutrition—too often is it the case that the maternity is undesired, and the mournful spectacle is seen of an unwilling mother—can there be a more lamentable condition of affairs? Can there be any hope, except that "great nature is more wise than we?"

Is it any wonder that the development of this child is bad? Is it any matter of mystery that we find it like its parents? Its after-history is seen in the record of your vital statistics, which show that half of these unfortunates perish before the age of five years, and that half of the survivors die of consumption.

Some survive, thanks to the admirable hygiene of our day. Good nursing, skillful medication, all the arts of modern science, are brought into requisition, and the lives of some are prolonged until they outgrow their feebleness. Our physiology teaches us that their bones change, their tissues moult and are cast off, that their structures, by exercise and the beneficent help of a Providence which tends to set us upright, no matter how we may be warped by malformation, are improved, until the feeble child of feeble parents is developed into something of robustness—only *something*, for the constitution is, as we know too sadly, anything but good, and succumbs readily to disease.

But the same physiology teaches that while these improvements are being made in the tissues—the bones, muscles, etc.—the teeth are not susceptible to such change. They are calcified, not ossified, and as they are formed so they remain. The truth seems to be that the enamel, the outer covering of the tooth—hard, dense, almost vitreous, and practically inorganic—when once formed, can undergo no change of a physiological character, but remains throughout life as when first calcified.

Now, when we revert to the statements made earlier in this paper—to the fact that those teeth which are first formed are first to be destroyed by caries; that the temporary teeth are often attacked the first year of their eruption; that the first permanent molars, which belong there physiologically, are almost as easily destroyed; that the canines and wisdom teeth, which are matured in extra-uterine life, and when the tissues have opportunity for more perfect nutrition, are the strongest of

all—I come to the conclusion that the great predisposing cause of the decay of the teeth of Americans is that of defective intra-uterine development.

Excision of the Tongue by Immediate Ligation.

Mr. WILLIAM FEARNLEY, L.R.C.S., Edin., of Lerwick, Shetland, gives this case in the *British Medical Journal*, May 25th, 1878:—

Christina J., of Tingwall parish, came into Lerwick to consult me regarding a sore on her tongue. She came to me on November 6th, 1875. She was then aged sixty-six; was living with a sister older than herself; had a good family history; had enjoyed average health all her life; had never been married. I found a large "sore" on the right border of her tongue, opposite to and touching the only tooth in her head—a molar in the lower jaw, with a sharp inner edge. The sore had all the characters of an epithelioma, and involved the anterior third of the posterior half of the right lateral half of the tongue, which was much indurated. The glands were, so far as I could make out, unaffected. I recommended extirpation, to which she readily consented. She, with her sister, took a suitable room in the town, and on the 9th I, with two assistants, proceeded to remove the whole organ.

She was put deeply under the influence of chloroform (given on four thicknesses of towel); and I seized the tongue with a pair of forceps, and transfixed the tip of it with a needle carrying a stout double thread, which was afterward looped and given to an assistant, by which he pulled the tongue well out of the mouth. I then laterally transfixed the tongue with a blanket pin, beginning at the right angle of the mouth and bringing it out at the left, and by this means carried the pin immediately in front of the epiglottis. I then placed a single loop of very stout whipcord around the tongue behind the pin, giving it one turn of a knot, ready to be tightened. Next, I divided the attachments of the tongue to the floor of the mouth, by means of a pair of scissors, while it was being dragged well out by the looped thread, taking care to hold the face well sideways and close as possible to the pillow. Then I quickly severed the tongue with the whip cord, which cut it much as it would cut hardened butter in frosty weather.

There was very smart hemorrhage during the time the scissors were being used, and the patient lost, as near as I could tell, about three ounces of blood. There was no further hemorrhage after the tongue was removed—never a drop from the surface traversed by the whipcord; and no ligature, or even mopping of parts with styptic, was required. The patient remained in bed three days, and went home—on foot, I believe—on the eighth day, a distance of eleven miles.

She had eight months of comparative health, when the cancer returned, this time in the larynx, and ended her life, thirteen months after the operation.

I saw, during my student days, the late Mr. Nunneley, of Leeds, remove tongues by this method; and afterward, as an Edinburgh student, I saw the procedure of the late Mr. Syme carried out. In using the *écraseur*, surgeons use the quite unnecessary precaution of waiting each time, after giving the handle a turn, half a minute or more, thinking thereby to prevent hemorrhage. After a thirteen years' experience of the application of torsion among the so-called lower animals, I am in a position to state that no more blood is lost after the most speedy severance of actively vascular parts by the most rapid strangulation than is lost by the measured torsion at present resorted to. Further, I have not seen, even by Mr. Syme's operation, the tongue and its attachments more completely removed than was quickly effected by my simple proceeding.

On the Operations for Harelip and Cleft Palate.

In a lecture in the *Lancet*, May 25th, 1878, Mr. FRANCIS MASON, F.R.C.S., says:—

The harelip pin with the twisted suture is very commonly employed to bring the edges together, but, without entirely discarding this method of approximating the parts, I feel sure that the usual interrupted suture of silk may in most cases be employed with great advantage, and I believe, with certain precautions, it is in many instances preferable; but whether the twisted or interrupted suture be used, the success of the operation mainly depends, first, on the soft parts being thoroughly freed from the subjacent bone; secondly, on the edges of the fissure being so pared that a good broad raw surface is left; and thirdly, that the patient be incessantly watched for three or four days by a skilled nurse, who should support the newly united surfaces by making continuous but gentle pressure on each cheek. I have little confidence in the use of mechanical appliances after the operation; for in nursing the child they are apt to shift their place, and often do more harm than good. They are, however, invaluable as aids in bringing the two superior maxillæ together if worn before operative procedure is undertaken. Again, strapping is of especial service before the operation, but afterward it cannot be with safety solely relied on.

Besides the ordinary forms of harelip, fissures of the lips extend in other directions. Thus Mr. Ward describes a case in which the fissure extended into the right cheek; and another more remarkable case is recorded, in which a boy was born with a very large mouth. At seventeen years of age his mouth was six and a half inches in diameter, extending from one ear to the other, so that the tongue always hung between the teeth. Langenbeck operated on the lips and brought the parts together. Another remarkable example is reported by M. Guersant, in which the fissure on each side extended toward the eyelids.

The mention of the harelip almost necessitates a few words on fissure of the palate. On the subject of cleft palate I confess I have little to add, excepting that, in closing the hard palate, I usually perform the muco-periosteal or Langenbeck's operation. Dieffenbach's plan of dividing the entire bony palate with a chisel, which was introduced into this country by the late Sir W. Fergusson, has the disadvantage that it is sometimes accompanied by exfoliation of bone; but this untoward result may to some extent be obviated by boring a few holes, with an ordinary bradawl, in the line in which the chisel is to be applied; a plan I suggested in the *Lancet* of October 24th, 1874. Whichever operation is selected, the closure of the hard palate is often attended with troublesome hemorrhage, but the bleeding may be instantly arrested by plugging the wounds on each side with dry lint, after which the operation may be completed without difficulty. Severe bleeding of an intermediary or secondary character occasionally, but very rarely, occurs. Such a case has been recently reported by Mr. Marsh.

The chief object of the operations for cleft palate is, of course, the improvement of the voice. I need not refer to my views on the subject further than to say that a cleft in the soft palate is not a mere rent or slit in the parts, but is an actual deficiency or want of tissue. Hence, after the edges of the soft palate are bound together, the part remains as a tight curtain, stretched between the mouth and posterior nares. The result is that, in speaking, the air, instead of passing into the mouth, gains access to the nostril, and thus the peculiar nasal twang is maintained. I therefore venture again to recommend the performance of a very slight operation, an account of which I published in 1869? It should be understood that this pro-

cedure is an entirely independent operation, and should be performed only when the surgeon is perfectly satisfied that firm union has taken place. The incisions on each side release the part, and the palate is, so to speak, converted into a huge uvula.

(*c*) THE EYE AND EAR.

The Causes and Prevention of Myopia.

At the Geneva International Medical Congress, M. HATTENHOFF, of Geneva, read a memoir on the prophylaxis and etiology of short-sightedness, of which the following are the conclusions:—

1. The usual causes of myopia are overwork of the eye and heredity, of which the effects may be either distinct and separate or combined. 2. Hypermetropia, which is the normal condition of very many, if not of the greatest number of healthy eyes when in a state of repose, may be transformed into axile myopia, passing, meanwhile, through the stages of emmetropia and curvature myopia. 3. The progress of civilization, and especially of book education, tend to increase the frequency of myopia. 4. The tendency to acquired myopia is often, but not always, hereditary; the influence of race on this predisposition is still an open question. 5. In work of the eye three principal causes act together in predisposed individuals, tending to produce the anatomical lesions of progressive myopia. These are: (*a*) accommodation; (*b*) convergence of the visual axis; (*c*) oculo-cephalic congestion. 6. The conditions of age, attitude, light and duration, under which the eye labors; also the nature of the object on which vision is concentrated, and the state of the visual apparatus itself, all exercise a powerful influence on the development of myopia. 7. The prophylaxis of short sight consists in a system which will improve the hygienic condition of the individual, in and out of school, which can only be obtained by the joint efforts of the school physician and the sanitary authorities. The use of convex glasses by hypermetropic persons, must also be included among preventive means.

In the discussion upon M. Hattenhoff's paper, M. Galezowski remarked that, in consequence of the difficulty of diagnosing certain forms of distance myopia, it is probable that many children who are hypermetropic are really myopic. He acknowledges the frequency of hereditary myopia, but combated the idea that the more cultivated of the community are more usually myopic, citing in support of his opinion certain localities in France and Italy where short-sightedness is very frequent among the most ignorant classes. He also attached importance to the influence of race.

On the Absorption of Catgut Thread in the Eye.

Dr. NICATI (*Gazette des Hôpitaux*, June 28th), quoted in the London *Medical Record*, gives an account of some experiments made on animals with a catgut thread, such as has been used by Wecker for drainage of the eye. Dr. Nicati passed a thread of catgut through the eye, near the equator, and observed with the ophthalmoscope the changes it underwent. Immediately after passing the thread, the tension of the eyeball was diminished. The next day, there was considerable ecchymosis of the conjunctiva, the papilla was red, and the upper half of the vitreous body was cloudy. On the third day the optic nerve appeared normal, but there were little red specks at its periphery. On the twentieth day a

very remarkable phenomenon was seen; at the points of entrance and exit of the thread a new growth was formed, rich in vessels, which ensheathed the seton, and had the appearance of a vascular thread. The tension of the eye remained without alteration below the normal after the first day. As in operations performed on man, the portion of the thread which was external to the eye was rapidly absorbed.

In drainage of the anterior chamber, the thread was passed through the cornea so that three millimetres of the thread were in the anterior chamber, and the ends were cut off close to the cornea. The aqueous humor escaped entirely; the next day the chamber was refilled; the thread swelled up in the cornea and in the anterior chamber, but there was no inflammation. Soon a new vascular growth was formed around the thread; this rapidly filled the whole space between the cornea and the thread with vessels, and the cornea in its neighborhood became very vascular. After sixteen days the vessels began to dwindle away, leaving a clouded line, and at the same time the thread was seen to be undergoing rapid absorption, which was soon completed. The tension of the eyeball was diminished on the first day; but was afterward equal to, but not greater than, that of the other eye.

The Air Douche and its Application in Aural Disease.

Dr. Hartmann, in *Virchow's Archiv*, vol. lxx, records a series of investigations which he has undertaken, both in healthy and diseased persons, on the one hand to determine the physical action and effect of various kinds of air douche, and on the other to test the correctness of different views on the functions of the Eustachian tubes. He first endeavored to estimate the strength of the expiratory pressure required to produce the crack in the ear known as Valsalva's experiment. The nostrils were closed with an olive-shaped body, of which one was perforated and brought into connection, by means of a tube, with a manometer. It was found, in thirty-one experiments, that the sound did not occur until a pressure of from twenty to forty millimeters of mercury had been attained. On three occasions the tube was ascertained to be open, and as soon as pressure was applied the membrana tympani began slowly to bulge. Where catarrh and swelling of the pharyngeal mucous membrane were present, the air only entered under a pressure of 100 to 120 mm. of mercury, though the hearing had not been impaired. Experiments with another apparatus showed that during the act of swallowing a pressure of twenty minims was sufficient (as in Politzer's experiment) to force air into the tympanum through the tube. Hartmann entertains no doubt, from these results, that in the condition of rest of the muscles connected with the Eustachian tube a free connection between the cavities of the tympanum and of the pharynx is only exceptionally present, and that consequently the respiratory movements observed in the tympanum are due to the to-and-fro movements of the column of fluid present in the tube. On the other hand, in the act of swallowing the tube is opened and air enters the tympanum from the pharynx, though under ordinary circumstances the difference in the pressure of the air in the two cavities is only very slight.

Sewer Gas and Dampness as an Exciting Cause of Aural Disease.

A suggestive article on this subject appears in the Edinburgh *Medical Journal*, April, 1878, by Dr. J. P. Cassells. He gives a number of instances in point, of which the following may be quoted:—

Forty years ago, a gentleman, now aged about eighty years, went to live in an old cottage, situated in a valley on the banks of a small river, then a clear and purling stream, now a gross and foul-smelling sewer. When the gentleman referred to first went to live in this cottage, which he still occupies, he heard quite well; but in no very long time thereafter he began to get gradually deaf and deafer, till now, to-day, he is almost, but not quite totally incapable of hearing the voice of any one who addresses him. He has living with him now two daughters, who were born in this old house. The eldest of them began to get deafish at the age of seven years, and is now very deaf, and getting deafer gradually. She has no pain and no trouble of any kind, except a chronic congestion and hypertrophy of the naso-pharyngeal mucous membrane, and frequent attacks of skin eruptions, due to the presence of fungi. I ask you to note this last fact particularly, because of something that I shall subsequently state as to the condition of their dwelling-house. The younger daughter also began, about the age of eight years, to become dullish in the hearing, like her sister, and like her, she is gradually getting deafer. No treatment seems to avail in either of these girls' cases. The same abnormality of the throat and nose tissues exists in both cases, and, of course, the usual tympanitic tissue-changes are to be seen also; but, with these exceptions, they are seemingly in good health.

Now for the state of their dwelling: Its walls are damp, drawing this dampness from the soil on which they rest. The house being built on a slope, the basement flat in front is raised a few feet from the ground; it is therefore drier than the back part of the house, which is embedded for several feet in the moist soil.

A few years ago, in consequence of this dampness becoming no longer bearable, the flooring of the basement flat of the house was removed, and, on doing so, a most remarkable growth of fungi was discovered, whose luxuriance, judging by the description of it that I had from one of my patients, could only be rivaled by that of the undergrowth of a tropical forest.

In this case, to do battle with such forces as manifested themselves here was hopeless, and in the face of the persistent refusal of the gentleman to leave this old home, I have given up all treatment of his daughters' cases. I have no doubt, that were he to yield so far as to send his two children from home from time to time, the progressive characters of their respective affections might be held in check, but even this he refuses to do.

(*d*) ABDOMEN.

The Operation for Colotomy.

Mr. CHRISTOPHER HEATH, Professor of Clinical Surgery, University College Hospital, London, has the following remarks on this operation, in the *British Medical Journal*, December 1, 1877:—

It is performed by preference on the left side, or on the right side under exceptional circumstances. The patient is placed on the right side, with a pillow under the loin, in order that the left loin may be thrown into greater prominence. You then measure a point midway between the anterior and posterior superior spines of the ilium, and from that point draw a vertical line upward to the last rib. This line will give you the position of the bowel. Then make an incision four inches long, somewhat obliquely between the crest of the ilium and the last rib, half of the incision being on each side of the vertical line marked out. There is some differ-

ence of opinion as to the precise direction of the incision, some preferring it horizontal, others oblique. I myself prefer it slightly oblique, running parallel to the last rib. In making the incision, you divide the skin, subcutaneous fat, the external oblique and latissimus dorsi muscles, thus exposing the internal oblique. Having divided that for the whole length of the wound, the fascial lumborum comes into view, and you carefully divide it on a director. You have now exposed the loose fat about the kidney and colon in the anterior part of the wound, and the edge of the quadratus lumborum behind. Keeping the edges of the wound open with spatulæ, you displace the fat with the finger and seek for the bowel. In cases of obstruction with distention, you have no trouble in doing this, the bowel presenting at the wound, covered only by fascia transversalis. This fascia varies in thickness in different cases, and has sometimes been mistaken for peritoneum. But, if the bowel be empty, you tear through the fascia tranversalis carefully with the finger-nail, just in front of the quadratus lumborum, and, on introducing the forefinger, you will generally succeed in hooking the intestine. If you do not succeed in doing this, by turning the patient over on to his back the bowel will, in all probability, fall on to your finger. Bringing the bowel into the wound, you roll it round and expose the posterior surface, which, as you know, is generally uncovered by peritoneum, and when the bowel is distended, this surface is much larger. With a large curved needle, you then pass a stout silk thread through the skin, to one side of the ink mark, across the bowel, and again through the skin at a corresponding point on the other side of the mark, repeating the proceeding at the other end of the incision. Thus the colon is held to the margins of the wound before being opened. A transverse incision is now made into the bowel between the threads, and, the finger being introduced, the two loops can be drawn out, and, on dividing them, you have four threads to fix the bowel to the wound only requiring to be tied. The rest of the incision on each side of the bowel is then closed by ordinary sutures, and the operation is completed. The complications are very small. The greatest difficulty is in reaching the bowel when it is empty, but, with a little experience, this becomes quite easy.

The Elastic Ligature in the Treatment of Anal Fistule.

Dr. J. L. LUESSEROTT gives the following case in the Philadelphia *Medical Times*, February 16th, 1878, as illustrating the occasional success of this procedure:—

Hannah H., aged about twenty years, had suffered for some years with hemorrhoids, which resulted in two anal fistulas, one on either side of the outlet, and both including the greater portion of the sphincter. The one on the right side was situated furthest from the anal orifice, and extended about three and a half inches alongside of the rectum. At the date above mentioned, after having secured a good state of anæsthesia with chloroform, I introduced, by means of an eyed probe, into each track a strong ligature, composed of the elastic cord so commonly used by ladies about their dresses and also by milliners in their work. They were both drawn as tightly as could be conveniently done, and the patient was placed under the influence of a powerful anodyne. The one on the left side cut its way through in seven or eight days, the other one in about two weeks. Both fissures healed promptly, and the patient, who has since been the mother of one child, considers herself perfectly sound. No application was used to favor the healing of the wounds, and the suffering, which for the first few days was controlled by the anodyne, was hardly worth mentioning.

Opium in Hernia.

Dr. A. COUVERT, of Oxford, Ga., writes to the Atlanta *Medical and Surgical Journal* for February, 1878, as follows:—

Although for many years a practitioner of medicine in its several branches, I have avoided surgery as much as possible, except in its minor operations, under the belief that no one can attain to much eminence in it outside of a great city, with the facilities there afforded. Nevertheless, I have had to treat some grave cases occasionally, two of which I will briefly report—

Many years ago I was called on by a young physician, a former pupil, to visit a negro boy, eight or ten years old, who was suffering from strangulated inguinal hernia. All of the usual measures had been repeatedly and unavailingly tried. Giving a heavy dose of laudanum, I left to prepare my instruments and refresh my memory for the unaccustomed operation. On my return, after two or three hours, and arranging everything *secundum artem*, we were about to try taxis again before the knife, when lo! to our surprise and gratification, there was no hernia to reduce. Spontaneous reduction had taken place, and our patient was sleeping profoundly. "Well," said I, "John, we have cured the hernia, but killed the nigger." Not so, however, for he was soon as well as ever.

Some years after the foregoing case occurred, I was called to meet, in consultation, several physicians of experience and reputation, who had under treatment a negro man of about thirty-five, who had been long the subject of inguinal hernia, which recently became strangulated. All usual means were frequently used, and as often failed. Anæsthetics did not then command the attention and confidence that they do now. The knife was decided on, preceded some hours by one grain of morphine, added to large doses given a short time before. When we met to operate, two or three hours later, spontaneous reduction had occurred, and a speedy recovery followed.

I think it is an axiom, especially in this department of surgery, that when an operation is necessary, the sooner it is performed the better. I have seen a number of cases of hernia that seemed to call for the knife that were, happily, otherwise relieved. In the foregoing cases, I was within an hour or so of operating, but relief without the knife came within that time. Had I operated, it would have been unnecessary, as the sequel showed. Doubtless there are many cases that require an operation, and many fatal only from delay. Whether to act promptly or delay longer may sometimes be a difficult question for the surgeon to decide.

A distinguished Southern surgeon said, a few years ago, that he had never operated for hernia but once, and the great Liston said, in substance, that the glory of modern surgery consists more in the avoidance than the performance of operations.

Incontinence of Fæces.

In a clinical lecture delivered at the College of Physicians and Surgeons, New York, by ABRAHAM JACOBI, M.D., Clinical Professor of Diseases of Children, reported in the *Hospital Gazette*, April 25th, 1878, he said—

The child I now show you is brought to the clinic on account of a difficulty in controlling its passages. The child is seven years of age, and its attendant informs us that it cannot hold its fæces, or rather, that when it is taken with the desire to have a passage it does not have time to undress and go to the proper place before the evacuation takes place. He has two passages a day, and soils his clothing on every

occasion. This trouble has affected him for about a year; so that up to the age of six years he had no complaint of this kind.

On stripping the patient we discover quite a large swelling situated over the lumbar portion of the vertebral column. On questioning, we find that this tumor was congenital, and has existed in this situation ever since the birth of the child.

It might occur to you at once that there was some connection between this tumor and the symptoms complained of, on account of its situation over the lumbar region of the vertebral column. If this were so, we should expect the tumor to be in intimate relation to the spinal cord, and not situated entirely outside of the canal. Again, as the symptom for which he seeks relief has only existed for a short time, in comparison with the age of the tumor, which was congenital, we should expect that it must have increased in size during the last year; but such is not its history. The neighboring organ, the bladder, which would also be probably affected if the tumor exercised any influence on the complaint, is not involved, as the boy holds his water perfectly well. His present incontinence of fæces is, probably, more of a local or peripheral nature than due to a central disturbance. If there was a disease of the lower part of the cord, resulting in incontinence of fæces, we should have incontinence of urine likewise.

The tumor is situated in the location in which we most often find spina bifida. Not unfrequently we have a lipoma in this same situation, and one of these diseases has often been mistaken for the other. Not rarely the two exist together, and may occasion considerable uncertainty, both as regards diagnosis and treatment.

This lipoma is not increasing in size. It could undoubtedly be removed, but there is no hurry to operate, as it is doing no harm. I have seen them remain twenty or thirty years without undergoing any change. Besides, imagine the consequence of an operation, if beneath the tumor there is a communication with the spinal canal. There might be only a cyst of the kind I have just described, but the slightest cut might reopen it, and then serious results would follow. I should certainly advise the mother to let the child carry his tumor as it is, and then no harm at all will be done. If it grows larger and causes inconvenience or annoyance it may then be removed.

The child sometimes complains of a little pain. On careful palpation, it appears as if the spinous processes were slightly receding. This, however, is deceptive, for whenever we have a tumor seated over a level surface, the surface underneath seems to be receding. You will recollect what a deceptive feeling you get with a cephalhæmatoma, which gives you the impression that the bone over which it is situated is receding. In the case before us I am pretty positive that I can feel a tolerably normal spinous process underneath the tumor.

But to return to the incontinence of fæces. From what cause this arises we do not as yet know. The person who is with the child is not well acquainted with his history and cannot tell us whether or not he ever suffered from diarrhœa or dysentery. If he has suffered from that complaint it would be sufficient to account for the trouble. On account of the inflammation and the successive acts of straining, with the tenesmus to which it gives rise, the mucous membrane becomes lax and flabby, and that is the reason we so often see prolapsus of the rectum and analogous conditions following these diseases.

There might be a polypus in the rectum, which might also give rise to the state of affairs here seen. There might be simply imperfect contractions of the sphincter ani, due to anæmia and debility. We often see such cases in rachitic children, the

muscles being incompletely developed and acting imperfectly. In such cases iron or cod-liver oil alone will not only be useful in improving the general condition, but will likewise cure the local troubles.

We will now examine and find the condition of the rectum, and see if we can discover a cause. If I should introduce my finger through the anus with less trouble than usual, and should find nothing inside, the condition would probably be due to the simple œdematous condition of the mucous membrane following diarrhœa. We find, as you observe, that the sphincter is flabby and has not much power of contracting, and the mucous membrane inside soft and loose.

From these facts, I believe this incontinence of fæces to be of local origin and to be in no way connected with the external tumor. I also think that that is a simple lipoma which may be connected with no spina bifida, or one that probably closed after birth. There is no history of paralysis, etc., and I think we can safely exclude disease of the spinal cord from our diagnosis.

A few words now as regards treatment. The general condition of this child is not very poor. We might improve it and thus increase the nerve power by administering strychnia and similar nerve tonics internally, but this would be a rather roundabout way. If the child were in the hospital I should inject a solution of strychnia subcutaneously every day, in the neighborhood of the rectum. As under the present circumstances we cannot do this every day, I should propose to give it in the form of an ointment, say a scruple of the extract of nux vomica rubbed up with four to six drachms of fat, to be applied in the rectum two or three times a day. I should also advise cold injections, for their cooling and strengthening effects. Of the ointment, a piece about the size of a couple of coffee beans may be used morning and evening, preceded by the injection, which cleans the gut and allows of the absorption of the medicine. I think that under this treatment improvement will be very rapid.

Glycerin in the Treatment of Internal Hemorrhoids.

Dr. DAVID YOUNG, of Florence, writes to the *Practitioner*, January, 1878—

Two years ago my attention was directed to the use of glycerin in the treatment of hemorrhoids, in the following manner: An elderly lady suffering from diabetes mellitus came under my care. To allay her great thirst I ordered a drink, consisting of glycerin and water acidulated with lemon juice. She drank freely of this for several weeks, and during the same period used glycerin in every case, as a substitute for sugar. During one of my visits she asked if the glycerin was intended to act in any way upon the bowels. I replied in the negative, when she told me that since she had taken it she had been almost entirely free from bleeding piles, from which she had suffered for several years previously, and more or less continuously. At this time I was attending a young lady with advanced tubercular disease of both lungs, and whose ill-health was greatly increased by the discomfort and pain caused by a large internal dorsal pile, which came down constantly at stool and upon the slightest exertion, and occasionally, at varying intervals, weakened her by bleeding profusely. A radical cure she would not hear of, and, indeed, I would have hesitated in attempting it upon such a debilitated subject. Everything else had been tried, the bowels were regulated as far as possible by the diet, frequent ablution with cold water was carried out, and various astringent applications were used, but all to no purpose. I resolved to try the glycerin, and ordered two teaspoonfuls to be taken in a little water, morning and evening. The result has been most satisfactory. She

has now taken it for more than a year, during which time she has not had the slightest trouble from the pile.

I am at present trying it in several other cases, but only three of them have been sufficiently long under treatment to warrant anything being said about them.

The first case is that of a weak, nervous man, aged fifty-four, who has been a *bon vivant*, and is now a confirmed dyspeptic, and has suffered very much for several years, from bleeding piles. As he would not consent to have the hemorrhoids removed, I ordered him three drachms of glycerin in a wineglassful of water, morning and evening. Six months have now elapsed, and he has had no trouble whatever from the hemorrhoids, and in other respects he is in better health than he has been for several years.

The second case is a young married lady. She has been tormented with bleeding piles for more than two years. On examination, I found three large internal piles, and several flabby tabs of skin — the remains of external piles of bygone days. I advised her to have the internal ones removed by the thermo-cautery, to which she agreed, but her husband would not give his consent till every other means had been tried. She is now taking two drachms of Sarg's glycerin night and morning, and so far with a fairly good result. For more than two years she had never been free from attacks of pain and bleeding for more than a month at a time, and frequently not so long. Now she has passed three months with the minimum of discomfort and no bleeding whatever.

(*e*) GENITO-URINARY ORGANS.

Cystitis Treated by Instillation of Nitrate of Silver.

This method of treatment is illustrated by the following report from the Necker Hospital, Paris, in the *Medical Press and Circular*, May 8th, 1878:—

In the service of Prof. GUYON there are often patients suffering from inflammation of the neck of the bladder. This affection, which has generally for its first cause blenorrhagia, shows itself either after intense muscular fatigue, or is the result of excess of *coitus*, or the abuse of alcoholic drinks. Many forms of treatment have been praised and employed by surgeons, into which it is not now necessary to enter.

For ten years Prof. Guyon has employed direct treatment of the inflamed neck by instillation of nitrate of silver. Unexpected results have proved the efficacy of this method, and from successful cases we select two:—

CASE 1.—Cystitis of the Neck—Hæmaturia—Treatment by Instillation of Nitrate of Silver—Complete Cure in Seven Days.

F., age 38, admitted January 9th, 1878, to Salle Saint Vincent. About ten years previously had suffered from long-standing blenorrhagia. In consequence of excess in drink and *coitus* about a month previously, the patient experienced difficulty in urinating and very acute pain at the time of micturition, especially toward the emission of the last drops. Blood soon appeared in urine; for a month at each discharge there was hæmaturia. He urinates frequently during the night, and during the day has pressing desire every five or six minutes.

On exploration of the canal, we find that an exploratory bougie, No. 16, passes easily, with a slight resistance in the bulbous region.

January 9th.—Instillation of 20 drops of a solution of nitrate of silver in the neck of bladder.

10th.—Blood still in urine; the patient suffered for about two hours after injection, and made water about every quarter of an hour. During the day injection of 20 drops.

11th.—Amelioration; urine less clouded; injection repeated.

12th.—Urination less frequent, about every hour. Blood disappeared; in its place a muco-purulent discharge.

13th to 17th.—Same treatment; daily injection. Blood still absent, vesical distress. Micturition every two or three hours. The injection is much less painful. The patient is able to rise during the day.

17th to 21st.—May be considered cured. There is still a slight pricking at the end of micturition. Injection continued every day.

22d.—Patient discharged, perfectly cured.

CASE 2.—Blenorrhagic Cystitis—Cure in Eight Days.

B., age 25, admitted January 26th, Salle St. Vincent. Three months previously he had suffered from blenorrhagia, which lasted a month; for six weeks experienced pricking toward the end of micturition; at the same time he was obliged to rise during the night to urinate; during the day the desire was more frequent.

About eight days previously, after some fatiguing work, hæmaturia appeared, the symptoms increased in severity, and in this condition he was admitted to hospital.

January 27th.—Urethra examined with olivary catheter. It is completely free; slight pain as the instrument entered the neck of the bladder. Urine contained a large quantity of blood. Injection of a solution of nitrate of silver.

28th.—No amelioration. Urine bloody. Injection repeated.

29th.—No amelioration. M. Guyon, struck by the persistence of the hæmaturia, injected, himself, 12 drops of a stronger solution, and found that the two former injections had been made, not in the prostatic region of the urethra, but into the bladder, and hence the liquid, by mixing with the urine, had not exercised any local action.

30th.—Improvement; no blood in the night urine, a little in that passed in the morning. Micturition less frequent.

31st.—A little less blood; the pain after the injection is not so violent, and of shorter duration.

February 1st to 5th.—Improvement. No injection.

6th.—Another injection. Urine continues free from blood.

7th to 8th.—Injections repeated.

9th.—Discharged, cured.

Remarks.—The rapid and complete cure of the hæmaturia, and the disappearance of pain by the method of instillation, make these cases remarkable and worthy of interest. To perform the injection, a syringe is used, somewhat similar to that of Pravaz, to the extremity of which is fitted a catheter with an ordinary bulb perforated through its whole extent. After ascertaining that the canal of the urethra is free, an instrument sufficiently large is chosen, so that it may be easily felt in the scrotal and perineal region, and that it grates against the lateral lobes of the prostate.

The sensations perceived with this instrument will be as clear as if felt with the finger, and we have perfect knowledge of the region of the urethra it traverses. In the membranous region, the bulb will be slightly held by muscular contraction, then it will free itself in the prostatic region as long as it remains in this region. We know it by the slight pressure necessary for the instrument, and as soon as it

has cleared the neck of the bladder the fingers will feel a sensation of absolute liberty, indicating the entrance of the catheter into the bladder.

It is especially in traversing the prostate we feel the benefit of a moderately large catheter; without this precaution we cannot feel the entrance of the instrument into the bladder, and the caustic is injected into the urine, as happened in the second case. Some authors advise measurement of the urethra, in order to recognize the exact point, but this system is defective.

In the two cases we have narrated the patient suffered pain one or two hours after the instillation, but the pain is not very severe, and becomes less intense after each injection. The duration of treatment is relatively short and effective, and when it fails we must attribute it to either pure inflammatory cystitis, or to the failure of the injection to reach the locality inflamed.

Rupture of the Corpus Spongiosum Urethræ.

Dr. THOMAS J. LOUGHLIN reports a curious accident, in the *Hospital Gazette*, March 1, 1871, as follows:—

The following case is interesting, as illustrating a somewhat rare accident, which may occur during coition. Hugh G., aged twenty-nine, born in Ireland, and married, came under treatment for extensive extravasation of blood in the penis, scrotum, and perineum. His story was that, while having connection with his wife, his penis gave a "snap," which, according to his account, could be heard several yards away. Immediately afterward his penis began to swell and give him intense pain. On examination, in consultation with Dr. Satterthwaite, the penis, scrotum, and perineum were found discolored by blood and greatly infiltrated with serum. It was thought at the time that there was rupture of the corpus spongiosum. Bandages and support to the penis and scrotum were ordered, together with external applications of lead and opium. When seen again, on the seventh day after the accident, there was discovered a bloody tumor at the junction of the penis and scrotum. At this point it was surmised the rupture had taken place. As the parts were greatly reduced in size, and were evidently returning to their ordinary condition, and the hæmatoma contained a considerable amount of serum, in addition to its blood clot, the aspirator needle was introduced, and the excess of serum withdrawn. Three days later, however, suppuration set in within the sac. A free opening had to be made, liberating about two drachms of pus. On the fourteenth day the wound had healed, and the parts were entirely restored. As bearing upon the cause of rupture, the patient said he had never suffered from any disease of the sexual parts, and there was no mechanical obstruction, or, indeed, any hindrance made to the "act." Since recovery coition has been successfully accomplished.

On Prostatic Derangement.

Dr. R. W. WESTMORELAND writes to the Atlanta *Medical and Surgical Journal*, April, 1878—

The direct sympathy existing between the bladder and gland renders it a very difficult matter, at times, to decide which is primarily affected, and whether the one or the other is affected by some originating cause. As in diseases of the liver and stomach, we are very often at a loss to decide whether sympathetic or primary disturbance exists in the one or the other. This is a difficulty of very little importance, however, since exciting causes affecting the one redound to the detriment

of the other, and removing the cause will very often cure both without much further trouble.

It is in the aged, particularly, that we are most often called on to treat this difficulty. We will have them complain of a burning, scalding sensation while urinating. They are affected by a certain amount of strangury, or, at times, with incontinence. All these symptoms may alternate in the same patient, and be temporarily aggravated by measures or remedies having a direct exciting tendency on the genito-urinary apparatus. Thus the administration of cantharis, either internally or as a blister, has a very decided effect in that direction.

Then, too, you find many enthusiastic specialists, whose principal recommendation is their fervor, with the idea of "incipient stricture" fixed in their mind, "job" away at the congested and irritable neck, in their vain endeavor to find even a minute variance in the calibre of the canal. Such a case I once knew, of a printer, who came under my notice after being "poked" at by a "stricture specialist," when he had nothing more than enlarged prostate and cervical irritability.

The incidental symptoms, such as spasmodic stricture, etc., amount to very little, unless unusually prolonged, as ordinarily they are of temporary character. Rectal suppositories will ameliorate them until the grand object of treatment, removing the cause, has been accomplished.

The rule is, then, that we may always expect to find some exciting cause for the affection, and we should never pronounce idiopathic that which may be found to be due to a distinct and separate disturbance. Should we be led to believe that the acrid property of the urine results from lithiasis, alkaline saline cathartics, potassium iodide and carbonate with buchu and belladonna, would be the best agents at our command to combat the difficulty.

Local applications are very seldom necessary, and when they are used, nitrate of silver or carbolate of iodine are about as efficient as anything that can be applied.

There is nothing better, in my opinion, than a preparation of belladonna and buchu, in counteracting the irritability always existing in connection with enlarged prostate. By effecting this end we, in many forms of the disease, limit its progress, and quell many of the troubles incident thereto.

Operative Methods for Retention from Stricture.

In a communication to the Atlanta *Medical and Surgical Journal*, December, 1877, Dr. J. T. JOHNSON, says—

When the instruments at hand have been judiciously used, but without avail, then resort should be had to other means of relief. To continue the punching at the stricture, and probably with an ill-adapted instrument, can do only harm. It would tend to keep up, even to increase, that spasm and congestion to which the sudden stoppage of urine is attributable. And if it is not possible to aspirate, or make other operation, it is much better practice to quiet your patient with opium *per os* or hypodermically. This will relax the spasm and prevent, to a large degree, the further distention of the organ, by preventing the elimination of much water from the kidneys. Opium, in full doses, is better than injudicious attempts at catheterism. If, however, the retention has already lasted so long that the patient exhibits a tendency to coma, we should be extremely careful in the use of this remedy.

But it is not proper to allow the bladder to remain so greatly distended for many hours, with such possible dangerous consequences, and with so much suffering for the patient. We should resort to puncture. The trocar through the rectum or

above the pubes, until a recent date, were the means of puncture at our command. The aspirator now serves its purpose more kindly, and being easily managed, and almost free from danger, there is less hesitation in resorting to it.

An operation which I believe better than puncture with a trocar over the pubes, or through the rectum, and one which might be extended in the absence of an aspirator, consists in plunging a bistoury through the perineum into the distended urethra, behind the stricture, and just in front of the prostate gland. This can be done, when the bladder is distended, without great difficulty, by the aid of the finger in the rectum. The propriety of extending the incision forward from this point to divide the stricture, constituting external perineal urethrotomy, will be presently discussed.

It is always proper for the surgeon, when called upon to relieve retention incident to a stricture, to consider if it is not better to make some operation which will cure the stricture as well as relieve the present distress of the bladder. Otherwise, in all likelihood, when the patient has been relieved, he will postpone measures for a cure, and thus remain in constant danger of a recurrence of his trouble, and of other evils whose approach is not less dangerous because more insidious. But we should consider, further, whether an operation would be more dangerous because of the condition of the patient, than it would be by waiting for some days or weeks for recovery from the prostration incident to retention.

If we have succeeded in introducing a filiform bougie, we might be tempted to follow it with a divulsor, and so open the stricture. This, I believe, would not be good practice. The shock from divulsion is greater than from any other method of operating. This is true of the measure, even when undertaken with a patient in good condition, and the danger is intensified from the suffering and depression in the case we now consider.

Then we are left to choose between internal and external urethrotomy. If we have succeeded in passing the guide to the bladder, we can follow it, very likely, with Maissonneuve's urethrotome, and so divide the stricture by internal urethrotomy. To make the operation still more thorough, that is, to make complete division of the stricture bands, Otis' instrument should supplement the one already used.

For the above reasons, then, if we have decided to operate at once for the stricture, we may proceed as above directed, provided any operation from within the urethra be admissible. But I think it may be laid down as a rule, that patients suffering from prolonged retention do not bear operations within the canal so kindly as external urethrotomy. The more prostrated the patient, or the greater the disease of the bladder, so much the more, I believe, is "perineal section" to be preferred to division from within the urethra. It is not my object here, nor is it within the scope of this paper, to treat of the ease with which "perineal section without a guide" may be made, nor of the best methods of effecting "perineal section without a guide;" but I would urge the value of this operation when we have decided to relieve at a stroke both retention and its cause.

As above stated, internal urethrotomy is to be preferred to divulsion; but external urethrotomy (if the stricture be in the deep urethra) is to be preferred to the internal incision in those cases greatly prostrated by either the retention or other consequences of stricture.

Digestive Derangements in Urinary Diseases.

Professor GUYON, now in charge of the Civale ward for urinary surgery at the Necker Hospital in Paris, has lately published an elaborate clinical lecture, partly

translated in the Boston *Medical and Surgical Journal*, April, 1878, in which he calls attention to the varied forms and degrees of dyspepsia observed in patients suffering from diseases of the urinary passages. Accurate knowledge and careful observation of these symptoms are of importance in several ways. The disturbances in question are in some cases so pronounced as to distract attention from the primary disease, the latter being unobserved by either physician or patient; or, if noticed, being looked upon as an accidental and unimportant complication. When correctly understood and referred to their real origin, these digestive derangements have a diagnostic and prognostic significance which entitles them to attentive study. They should also be taken carefully into account by the surgeon, in connection with the treatment of the primary disease, being the source of valuable indications, both therapeutical and operative.

The class of cases in which the symptoms described by Guyon occur, consists chiefly of those in which chronic partial retention of the urine has existed for some time as a consequence of some obstructive disease of the urinary passage. Such are cases of urethral stricture of long standing, and cases of prostatic hypertrophy, in which imperfect evacuation of the bladder takes place. Some of the most pronounced cases of urinary dyspepsia are those where polyuria exists in connection with the partial retention within the bladder, and from this and other considerations Guyon infers that renal disease, more or less latent, is largely concerned in the production of the dyspepsia.

The symptoms in question comprise various forms of digestive derangement, from simple chronic dyspepsia to violent "bilious attacks," with vomiting and diarrhœa. They include the following manifestations: loss of appetite, nausea, vomiting, diarrhœa and constipation. Megrim is also occasionally observed, several cases being cited in which the disappearance and the return of this disorder coincided with the temporary cure and relapse of stricture.

A peculiar appearance of the tongue, which is of a bright red color and extremely dry, is thought by Guyon to be so characteristic of the conditions under which it arises, that he calls it the "urinary tongue." The dryness of the mouth and fauces is sometimes such as to engender a condition of "buccal dyspepsia," mastication and deglutition, as well as the taste, being so interfered with that all solid food is persistently refused, whereby the enfeebled condition of the patient is much aggravated. In such cases the mouth is apt to be invaded by thrush.

Vomiting and diarrhœa are often the predominating symptoms, not only in connection with the severe acute attacks constituting "urethral fever," but also independently of any febrile disturbance. Cases of this kind occur with chronic diarrhœa and vomiting, in which the fatal termination is preceded by a falling temperature. In some of these chronic urinary dyspeptics, severe and persistent vomiting is liable to follow operative treatment. In such cases, Guyon thinks that surgical intervention ought generally to be deferred until the strength of the patient has been sufficiently restored by a suitable nutritious diet and by tonics.

These dyspeptic derangements are often of long duration. Eventually, a condition of "urinary cachexia" is reached, characterized by extreme emaciation and a yellow hue (not icteric) of the skin, together with a total loss of appetite, nausea, vomiting, and, perhaps, chronic diarrhœa. There is a liability to attacks of irregular intermittent fever, which may occur spontaneously or as a sequel to operations. In some of these cases of cachexia, the surgical treatment, bringing about a complete and regular evacuation of the retained urine, will restore the patient to a condition of

fair health, especially if cautiously carried out and preceded by a restorative regimen and medication. But not unfrequently, with patients enfeebled by long-continued suffering and dyspepsia, an operation is but a *coup de grâce.*

The diagnosis consists in recognizing the true character and origin of the dyspeptic symptoms, which, in some cases, may not at once be obvious. Thus, an old man, who thinks himself in other respects in fair health, may come to his physician complaining of loss of appetite, of frequent recurrence of vomiting, of attacks of diarrhœa, of recurring fits of "biliousness," or of megrim, the trouble in question being dependent on the unsuspected presence in the bladder of stagnating urine, due to obstructive hypertrophy of the prostate.

The treatment consists, of course, in removing the primary cause by surgical procedures, insuring due evacuation of the partially retained urine. But if the benefits to be derived from such surgical treatment are incontestable, it is often a very delicate matter, involving considerable risk and responsibility, to carry it out. In many cases the patient must be prepared for operation by a careful medicinal and dietetic treatment, having in view the elimination of the urinary poison with which his system is saturated, and the restoration of his strength. For this purpose Guyon recommends the use of mild laxatives, repeatedly administered, accompanied and followed by various tonics, including alcohol, together with the use of such *food as* the patient can digest and assimilate. Milk, to the amount of two quarts *daily, and* raw meat, are advised. Friction and massage are also serviceable.

The Prevention of Phosphatic Deposits in the Bladder.

Sir Henry Thompson has an article on this subject in the *Lancet*, February 2d, 1878. After speaking of the necessity of exercising much care in operative procedures, so as to avoid injuring the viscus, he proceeds:—

The next practical question for consideration is the treatment of the bladder itself when phosphatic deposits and concretions are formed there, and show a tendency to remain, or, after expulsion, to be again produced.

The first condition indisputably necessary to success is that the organ, if incapable of emptying itself, should be artificially emptied by the patient in the easiest manner, as often in the twenty-four hours as his comfort demands, and never less than twice a day, however small the quantity left behind. Next, as organs thus affected are by no means always quite emptied, even by the catheter, a small quantity of warm water should be injected once, twice, or thrice daily, after catheterism, to wash out the remaining urine if any such there be, and the phosphatic precipitate which will be certainly found therein. For this purpose the four-ounce india rubber bottle with brass nozzle and stopcock is the best instrument; one-third only of its contents is to be injected at a time, and this quantity is to run out before the succeeding third is introduced. To the water should be always added either carbolic acid in the proportion of one grain to the ounce, or the solution of permanganate of potash (Condy's) six or eight minims to the ounce. Either of these disinfectant solutions, the first named being perhaps mostly preferable, should be employed as preliminary to all other injections; they are not in the slightest degree irritant to the bladder, and they deodorize and cleanse the interior. Further, and this is a fact of some importance, carbolic acid does not decompose any solution of metallic salts which it may be desirable to inject immediately afterward. It ought not to be necessary to add, in passing, that all instruments should be placed, before and after use, in a bath of carbolic acid solution, but double the strength of that mentioned

above. This, of course, relates to all instruments which are, at any time or for any purpose, to be introduced into the urinary passages.

The bladder being thus kept in good sanitary condition, the next consideration is, what agents are to be employed to promote healing action in the diseased mucous membrane? The best are salts of silver, copper, and lead, very weak solutions of which should be used at the first occasion of applying them, watching carefully the result before augmenting their strength, and doing so very gradually. The nitrate of silver should at first not exceed in strength the proportion of one grain to four ounces of distilled water; even one to six ounces is preferable, if a patient is more than usually susceptible. It should always be preceded by a cleansing or deodorizing injection, to remove from the surface to be acted upon the muco-pus which is coagulated by the solution of silver, and tends to hinder contact with the agent. This injection is to be employed in the gentle manner directed above for the first application. If very little inconvenience follows, a slightly stronger solution should be used after an interval of two or three days, always avoiding an increase in strength sufficient to produce any severe or long-continued pain.

Sulphate of copper should be applied in the same proportion—viz., one grain to six or four ounces of distilled water. An acetate of lead solution of the same strength is a valuable agent, to be used daily, or even twice a day, by the patient himself; but the sulphate of copper, like the nitrate of silver, is to be repeated only every alternate or third day, according to results. It may be remarked here that in the treatment of chronic vesical hemorrhage by astringent injections, such as the solution of matico, or of perchloride of iron, the same rule in relation to the carbolic acid solution, and to the manner of injecting, should be followed. In the last named condition, also, the temperature of the injection may be lowered to 40° or 50° F., while, in relation to the subject under consideration, the temperature should not differ greatly from that of the body.

For the removal of small concretions, the eight-ounce elastic bottle, with a large brass nozzle overlapping a No. 10 or 11 gum catheter (described in the *Lancet* of January 8th, 1876), produces an excellent current, not only inward but outward, by expansion of the bottle; and Mr. Clover's aspirator, so useful for débris in lithotrity, or for removing last fragments, is equally valuable here. But the object of the injections above described is not to remove deposits from the bladder, but solely for the purpose of acting on the mucous membrane, so as to hinder their formation, and aid in producing a healthy surface, to which they will no longer adhere. By systematically carrying out the plan laid down as soon as they appear, whether after lithotrity or in connection with chronic disease of the bladder and prostate, the complaint can generally be greatly mitigated, and sometimes it is effectually cured.

VII. DISEASES OF THE SKIN.

Chrysophanic Acid in Psoriasis.

The following case, given in the *Medical Times and Gazette*, May 4th, 1878, by Russell Steele, M.R.C.S., illustrates the use of this new remedy:—

Frederick H., aged fifty-three, engineer in a paper mill, a strong, hearty-looking man, first came under my care on January 16th, 1878, suffering from psoriasis

occurring in large patches, situated on the backs of both forearms and elbows. There was also one patch on the right hip. No history of syphilis. He stated that the disease had existed nearly eight years, and had baffled all treatment. Having recently read of Dr. Balmanno Squire's successful treatment of this disease, by means of an ointment of chrysophanic acid and phosphorus perles, I determined to give it a trial.

He was ordered to take one-thirtieth part of a grain of phosphorus (contained in the usual phosphorus perle) three times a day, directly after food, and to rub into the patches, every night and morning, an ointment containing two drachms of chrysophanic acid dissolved in one ounce of lard.

January 19th. He says he feels better. The eruption does not look so bright, and seems clearer in the centre of each patch; not so scaly. The finger nails are dyed of a reddish-brown color. There is a slight reddening of the skin for a little distance round the patches. The clothes are stained a dirty purple color.

26th. The patches are looking wonderfully better; no scaliness; skin in centre of most of the patches smooth and of natural color. He says the eruption has not looked so well for a long time, and is greatly pleased with his progress. To take two perles three times a day. Skin reddened very much over both arms.

February 4th. He says that on taking two perles, as ordered, epigastric pain is caused, so he is only to take one perle three times a day, and to continue the ointment. With the exception of two patches situated on the skin over the right and left elbows, all the other patches have vanished, except their actual margins, which are slightly raised, and still a little scaly.

9th. He came to see me to-day, for a fresh supply of ointment and perles. He says that, notwithstanding his having experienced epigastric pain after taking two perles at a dose, he determined to try again, and is now able to take them without discomfort. The patches on the elbows are rapidly disappearing. Only the actual margins of the other patches remain, and these are beginning to get broken and dotted.

16th. Still to continue taking two perles at a dose, and to go on with the ointment. Getting better. No fresh spots of eruption.

23d. To use the ointment with only a drachm of the chrysophanic acid to the ounce of hot lard. The margins of the patches on the right arm are completely broken up, and exist only as widely-scattered points; those on the left arm disappearing more slowly. To take three perles for a dose, but to stop if any pain at the epigastrium is caused by them.

March 2d. There are merely a few scattered points of eruption remaining on the right arm. The eruption on the left arm is rapidly vanishing. The perles are taken without discomfort.

16th. The eruption on both arms has very nearly all gone. Just a few scattered red points, free from scaliness, to be seen. To take three perles twice a day. To continue ointment.

30th. All the eruption has disappeared. To suspend treatment.

Lupus of Face Treated by Linear Scarification Aided by Erasion.

Mr. BALMANNO SQUIRE, at a meeting of the Clinical Society of London, in January, exhibited a woman, aged thirty-two, single, a machine worker, who had been affected with lupus of the face since the age of fourteen. The disease appeared

first on the nose, and remained restricted to the nose until three years before, when the disease appeared on the right cheek, also occupying here a distinct position quite isolated from the patch on the nose. Her condition in September, 1877, was that the lower third of her nose had disappeared, and become replaced by a thick scab covering an ulcer, the floor of which consisted of pale, flabby granulations exuding a thin, purulent discharge. The patch of disease on the right cheek measured two inches vertically by an inch and a half horizontally. It consisted of unbroken lupus tubercles, and presented no scabs or ulcerations. On September 27th Mr. Squire operated on the whole of the diseased area, both of the cheek and the nose, by scraping away the friable portion of the diseased skin by means of a small steel spoon, provided with sharp edges, after the manner originally advocated by Dubini, of Italy, and subsequently by Volkmann, of Halle, and, as soon as the surface had healed, he again, after about a fortnight's interval, performed the operation. On the surface healing for the second time, a very considerable improvement was noticeable; in fact, the cure of the disease was evidently for the greater part already accomplished. There remained still various portions of skin which, although not sufficiently diseased to permit of their being scraped off by means of the spoon, were, nevertheless, evidently affected, in an obvious degree, with lupus infiltration. These, accordingly, were treated by means of linear scarification, repeated at short intervals several times over the same area. The ulcers of the interior of the nostrils were treated in the same manner, namely, by operating through a nasal speculum. The patient did not on any of these occasions avail herself of anæsthesia, either general or local, but bore the process almost without flinching. She seemed now to be quite cured of her disease. The period between the time at which the disease had now long since seemed to be cured and this present time has been occupied by Mr. Squire in watching to see if any return of the disease took place, and by his eradicating by means of erasion with the sharp spoon, or by scarification with the scalpel, any minute traces of the disease which seemed to be still left unobliterated. His deviations from the course of his predecessors in this method had consisted in the use of much smaller spoons for the purpose of attaining greater accuracy in manipulation—an important point when it is requisite to eradicate even the smallest possible remains of the disease—and for the other matter, in employing linear scarification in place of the hitherto used and so-called multiple punctiform scarification, equally also for the purpose of attaining greater uniform precision in the treatment.

VIII. GONORRHŒA AND SYPHILIS.

The Treatment of Gonorrhœa.

In the *Southern Medical Record*, May, 1878, is the following by Dr. C. C. GODSHAW:—

Believing, as I do, in the local nature of the disease, I do not recommend the antiblenorrhagic treatment, as few will tolerate it, and besides, with me it has not worked any good results. The so-called abortive treatment—caustic injections and applications—should also be discountenanced, as they do no little harm.

Gonorrhœa, like other catarrhal inflammations—as, for instance, ordinary conjunctivitis—can be cured with mild, weak and soothing astringent injections,

properly used, and with due attention to hygiene and cleanliness. Certainly, where indicated in constitutional derangements, as malaria, anæmia, rheumatism, etc., tonics and appropriate medication are necessary. It should also be seen that the bowels are kept soluble and kidneys act freely. The following is a favorite combination with me, and cures, when used as directed, in from ten days to three weeks often sooner :—

℞. Sulph. zinc,		
Tannic acid,	āā	grs ij–iij
Sulph. morph.,		grs.iij–vj
Sulph. atrop.,		grs.ss–j
Distilled water,		℥vj.

Dissolve. Direct to inject every two hours.

Since I have used the atropia in combination with morphia, in weak, astringent injections, I find, through its valuable anodyne and antispasmodic properties, that the tendency to chordee is controlled, while the pain produced by the passage of urine is considerably mitigated.

If there is excessive pain during micturition, the following formula, much used by Zeissel and Sigmund, of Vienna, may be prescribed :—

℞. Ext. cannabis indic.,			
Ext. hyoscy. sem.,	āā	grs.iv	
Sacch. alb.,		℥ss.	M.

Fiat chart No. 9.

Sig.—One every three hours.

In using the injection the patient should be shown very minutely the method of using the syringe. The doctor should always inject for him the first time, and afterward, if necessary, thus seeing that he performs it properly, and as the symptoms and discharge decrease, so should the number and frequency of the injections. After using the syringe, so plainly described by Bumstead, the instrument should be withdrawn, and the medicated liquid allowed to remain for a few minutes.

Before doing this, however, one rule must be implicitly followed—to urinate before injecting. It is also a good plan to inject simple water just previous to using medicated fluid, thus insuring thorough cleansing of the canal.

In regard to syringes, the hard rubber is preferable. Its nozzle should be about one-half inch in length and smooth, so as not to lacerate the already diseased tissues. The patient should also be advised to wear a suspensory bandage during the treatment. If the bandage cannot be conveniently had or bought, a very ingenious substitute is found in the shape of the heel of a cotton sock, to which are attached four cords or pieces of tape.

Hygiene and Cleanliness.—In a person whose glans penis is covered with a long prepuce too much attention to thorough cleanliness cannot be exercised. Frequent ablutions must be practiced. In such a case the cure is undoubtedly retarded by the meatus urinarius being occluded by the necessarily inflamed preputium and the constant irritation of the accumulating discharge and decomposed secretion. Such disgusting signs are seen on persons who otherwise are scrupulously clean! I find that the circumcised, or even those whose glans are partially covered, yield more readily to treatment. The sanitary influence of circumcision in the treatment of gonorrhœa alone, in my observation, is a great factor.

Diet and Habits.—Moderation and temperance should be advised. Wholesome and nutritious food must be taken, while the idea of starving out the disease is

simply ridiculous. If the patient be accustomed to liquors, malt or otherwise, or tobacco, I find by depriving him entirely of these the disease is retarded in its cure. If used in excess with a debilitating effect, certainly they must be interdicted, as well as society and thoughts that tend to excite the sexual organs.

It is also well to observe, as the majority of cases are in persons who, from business or other relations, cannot lie down, we must enjoin as much rest as possible during treatment, and also prohibit sexual intercourse until several weeks after the cessation of the discharge.

In conclusion, I would add that we cannot be too minute and clear in our instructions, for just in proportion to these directions will the intensity and duration of the case be lessened.

Remote Results of Gonorrhœal Disease.

In an article in the Detroit *Lancet*, March, 1878, Dr. T. A. McGRAW, says—

Inflammations of the genital organs of both male and female may be mentioned as often causing persistent and deplorable pathological conditions. I do not think that the profession as a whole sufficiently realize the gravity of gonorrhœa. There are very many physicians who seem to look upon it as a comparatively trivial malady, which ought to get well in a few weeks. Unfortunately, the frequency with which the disease is simulated by a simple urethritis, from which patients may speedily recover, encourages this belief in many of the laity as well as in medical men. Now, it is my experience (and I have treated many patients according to the methods recommended by the best authorities) that a real resident gonorrhœa produces about as much trouble as an attack of syphilis, and is often as difficult to cure. This is especially the case when occurring in scrofulous or syphilitic subjects. Its after effects, however, are often believed to arise from other causes, and its agency in producing permanent evil may be thus overlooked. To practitioners who do not deal much with such cases, a statement of the great number of people who have become thoroughly disabled, and who have even died, from the ultimate results of gonorrhœa, would seem incredible. Every hospital surgeon, however, can recall multitudes of such patients, who have spent years of their lives in trying to cure strictures of the urethra, inflammations of the bladder, ureters and kidneys, fistulæ, degenerations of the testicle, chronic inflammations of the cornea, and even diseases of joints and general debility, which have been the legitimate results of gonorrhœa. So impressed have some medical men been with these facts regarding this disease, that they have not hesitated to express their opinion in very strong terms, and one distinguished physician of New York even went so far as to declare that gonorrhœa was never thoroughly cured, and that many cases of sterility in women were to be explained by the existence of chronic metritis and salpingitis, which had been the result of contagion communicated by husbands who were suffering from gleet. Whatever may be the truth of this opinion, I know that in many cases the disease persists in spite of all treatment, and leads to many secondary maladies.

There can be no doubt that inflammations of the female genital organs are often the causes, immediate or remote, of barrenness. I have recently, however, noticed a statement in one of the medical journals, to the effect that inflammation of the bowels, also, in female infants and children, may interfere with development, and cause subsequent sterility. It had never before occurred to me, but I can readily understand how such results might happen, from the pressure of false membranes on the uterus and its appendages.

Syphilis as a Cause of Aphasia and Locomotor Ataxia.

At a meeting of the Clinical Society of London, April, 1878, reported in the *Lancet*, Dr. C. DRYSDALE read a paper on this subject. He stated that next to embolic plugging of the Sylvian artery, syphilis was probably the most common cause of aphasia, and cases were given in which cerebral symptoms appeared, seven, nine, and eleven months after the chancre, as also cases where the symptoms had appeared very late in the disease—e. g., twenty or thirty years after infection. Whereas in common aphasia from plugging of arteries the hemiplegia is almost invariably right-sided, in syphilitic aphasia as many as fourteen cases of left hemiplegia had been cited to eighteen of right hemiplegia as an accompaniment of the aphasia. In one case there was paralysis of both upper limbs, and paraplegia in four cases. There was paralysis of the right arm alone in two cases, and of the left arm alone in one. In three cases all the limbs were affected. In some cases there was no paralysis at all, and in others there was great loss of intellect. Syphilitic aphasia frequently comes on in the secondary period of the disease, when roseola and iritis are present. The prognosis is very grave, although some surprising cures by means of large doses of iodide of potassium are on record. Mercury does not seem to be a prophylactic to cerebral syphilis. As to locomotor ataxy, almost all writers on nervous diseases rejected syphilis as a true cause of the disease, yet it frequently figured in the history of the case, and, moreover, there was no *à priori* reason why syphilis should not cause sclerosis of the posterior columns of the cord, as it causes sclerosis in other organs. Dr. Alf. Fournier had found antecedent syphilis in twenty-four out of thirty cases of ataxy, and had collected eighty cases from the journals in which syphilis occurred in the history. Prompt treatment with large doses of iodide of potassium might often arrest a disease which was regarded as incurable and progressive; and Dr. Drysdale advocated that, wherever there was the slightest possibility of syphilis being the cause, the patient should have the chance given him of a vigorous treatment by means of the largest doses of iodide of potassium he could take without iodism, with one-fiftieth of a grain of perchloride of mercury.

General Paralysis in Syphilitic Patients.

M. FOURNIER, an eminent French authority, thus sums up his views on this subject in a late lecture:—

Undoubtedly, general paralysis does occur in syphilitic subjects sometimes, but sometimes only, and in quite too exceptional a manner to warrant our regarding it as depending directly upon the evolution of the syphilitic morbid processes. It is reasonable to suppose that a disease which affects the nervous system so profoundly as does syphilis, may be the determining cause in some cases. In syphilis itself the mental disturbances are not quite those of general paralysis; they may, indeed, present all varieties of excitement, violence, depression, or dementia, but they do not follow any special type, as do those of general paralysis. The condition of self-satisfaction of unfortunate subjects of general paralysis, who imagine themselves kings, prophets, great artists, who revel in fancied wealth, and propose every day fresh schemes, magnificent in the extravagance and boundlessness of their scope, all that makes up the common description of their delirium, is absent, or at least only exceptionally present in syphilis, and when present, the extravagance is tame and humble in comparison. Tremor may be present in syphilis, but is only occasional;

that of the tongue especially is very rare, while the tremor of the upper lip, so frequent in general paralysis, is perhaps never present, at least, M. Fournier has never seen it. Above all, the tremor lacks the constant, fibrillary, vermicular character of that of general paralysis. These differences are not merely of degree, but definite, and more easily recognized clinically than described by words. Paralysis and paresis of all kinds are common in syphilis, and correspond to what is ordinarily understood by those terms; whereas in general paralysis it is more a want of co-ordination and defect of precision, than abolition of muscular power. Again, in syphilis there is excessive frequency of partial paralysis affecting a special predilection for certain parts; for example, the muscles of the eyeball, a peculiarity which is not found in general paralysis. Hemiplegia, transient or permanent, is often one of the earliest phenomena of cerebral syphilis, and of great frequency in some period of the disease. Finally, in syphilis, motor phenomena, apoplectic attacks, etc., commence the affection; in general paralysis, intellectual and moral disturbances prelude the symptoms of cerebral disorganization, while similar distinctions mark the course of the two diseases, syphilis being irregular, variable in its progress, in the succession of phenomena, and its duration; general paralysis, on the other hand, is regular, and of definite duration. The comparison of the general state of the patients in the two diseases gives not less striking distinctions, in syphilis, cachexia; in general paralysis, maintenance of nutrition, even *embonpoint*, up to the very last. Finally, syphilis may be regarded as at least possibly curable, gloomy as is the result in most cases, yet differing even in this from the other absolutely incurable malady.

A Case of Syphilitic Albuminuria.

Dr. L. P. YANDELL, Professor of Therapeutics and Clinical Medicine, University of Louisville, reports the following case in the *Maryland Medical Journal*, May, 1878:—

Peter W., an intelligent German, sixty years of age, came under my care in the Louisville City Hospital, December 1st, 1876. He was the subject of general dropsy, and on the card over his bed was written "albuminuria." His pale, waxy-looking skin, puffy eyelids, constant indigestion, slight bronchitis, disturbed vision, hemicrania, pain in the back, muscular debility and frequent nocturnal micturition, all confirmed the diagnosis, and examination of the urine showed it excessively albuminous and abundant in tube casts, and renal *debris*. He had been an inmate of the ward four months, at the time of my assuming charge, and had been under treatment during that time, but without benefit. I ordered for him bromide of potash, tincture citro-muriate of iron and milk diet. The painfully distended condition of his legs was greatly relieved by punctures on several occasions, and he got elaterium when the dropsy was not sufficiently ameliorated by the punctures. Deriving no comfort from the bromide and iron, and, indeed, growing gradually worse all the time, and having no hope of recovery, he begged to be allowed to desist from treatment, and the request was granted at the end of two weeks. Early in the third week of my service the patient's throat became ulcerated and exceedingly painful. Examination revealed extensive ulceration of the fauces, strikingly syphilitic in appearance, but as he denied ever having had that disease, he was treated by local applications, together with quinine and iron internally. No impression being made on the sores, after a few days, a careful inquiry was made into the patient's history, with the following results: Has had a rough, laborious life, attended by considerable

exposure. Has never been drunk nor at all dissipated, but has always taken one or more drinks of whisky or beer daily. Married twenty years ago, is the father of three healthy children, and after the birth of these his wife miscarried twice, of small, withered-looking children. Wife very dissipated, but never had any signs of venereal disease. She is dead. The patient states that for many years he has suffered more or less from dropsy, but only occasionally disabled from work. Never had a sore on genitals or elsewhere; never had any cutaneous eruption or falling of hair or sore throat till now. Never had gonorrhœa. Never took mercury, beyond an occasional dose of blue mass or calomel, as a cathartic. His nose shows the saddle-shaped depression so often associated with tertiary syphilis when the nasal bones have come away. He says that in 1857, while a hospital patient in New York, where he was treated for albuminuria, his nose got sore and two bones came out of it. He asserts that he received no treatment for his nose, and that it healed of itself. For twenty years he has suffered frequently from rheumatism, which was always worse at night, and particularly affected his legs. His mother died of phthisis, and his father deserted the family, or, at least, disappeared, before her death.

I have known the patient for many years. He was janitor and resurrectionist at the University of Louisville for a long time, and subsequently a nurse in the City Hospital.

He is a bluff old fellow, perfectly truthful, and without any squeamishness in acknowledging his sins or misfortunes. Confident, however, that the nocturnal rheumatism, the deformed nose, the present throat trouble, probably the withered miscarriages, all pointed to syphilis, I determined to try the crucial test for tertiary syphilis, namely, iodide of potash. The non-syphilitic individual is easily iodized by small doses of the drug, but one having tertiary syphilis will usually bear this medicine in well nigh unlimited quantities, not only without inconvenience, but with almost absolutely certain benefit. The patient under consideration was ordered a scruple of the iodide of potash every three hours, when awake, to be taken in half a glass of skimmed milk, or water, the doses to be increased ten grains each, every day, till iodism, gastric disturbance, or relief symptoms should occur. He took, on several occasions, an ounce of the medicine daily, and never had any discomfort from it. He got iron and bitter tonics at the same time. His improvement was marked at the end of a few days. The throat rapidly healed; his strength, appetite and color returned. Furthermore, his dropsy disappeared, and the urine ceased to evince any sign of renal disease. In two months he was well, and resumed his place as nurse in the negro ward, which he had given up five months before, on account of albuminuria. There can be but little doubt that the kidney disease was of syphilitic origin, and that the iodide of potash cured it.

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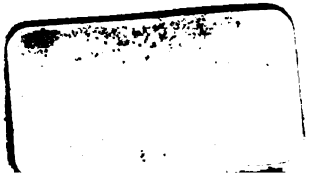
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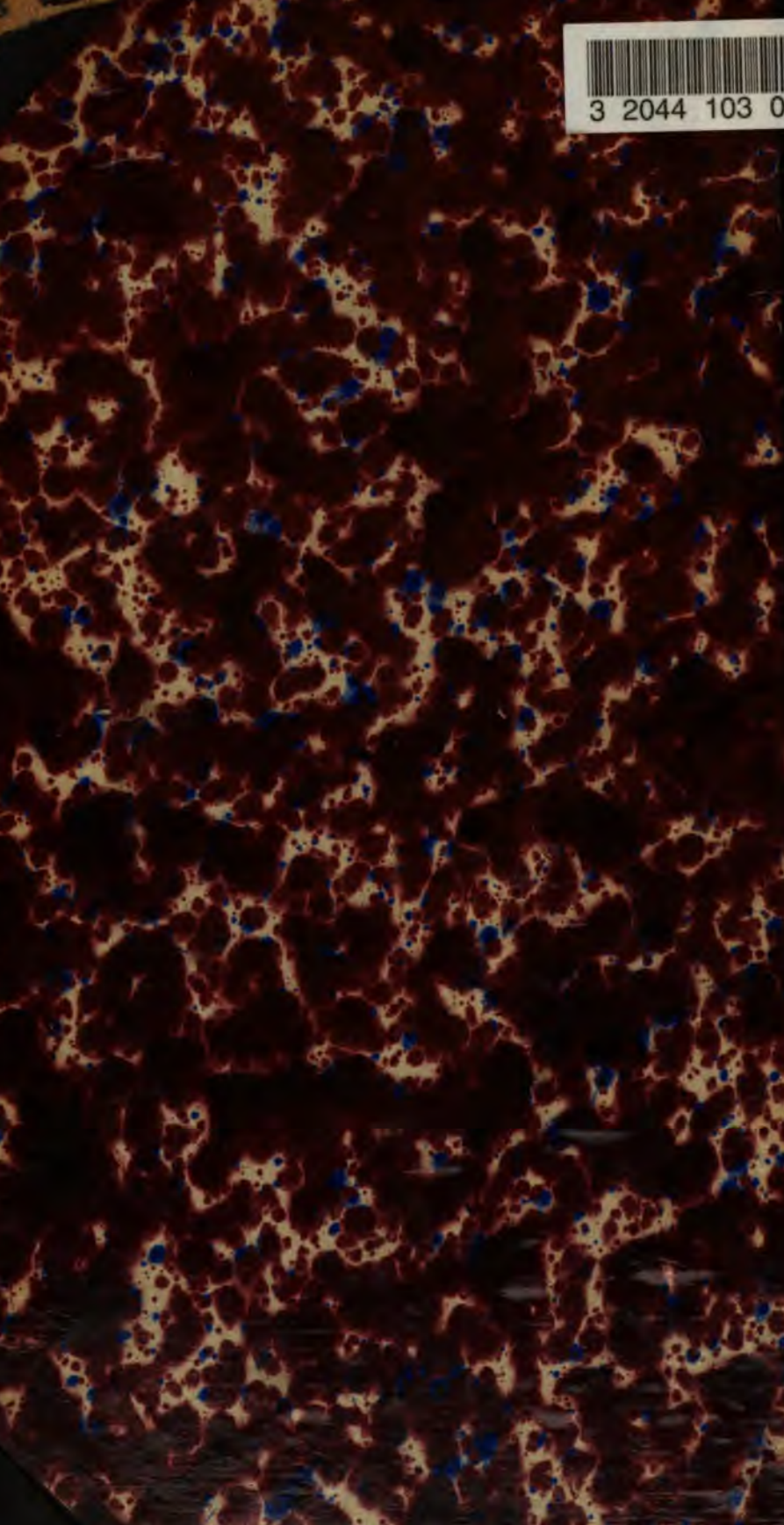
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